Test Report

FCC Part 15.247

DTS Devices operating in range 2400-2483.5MHz

FOR:

Model Name: P121UEU
FCC ID: O8F-PIXYW

TEST REPORT #: EMC_ PALMO_070_09001_15.247_WLAN_Conducted_rev1
DATE: 2010-03-16

Bluetooth Qualification Test Facility (BQTF)

FCC listed: A2LA accredited

IC recognized # 3462B

***CETECOM* Inc.**
411 Dixon Landing Road ◆ Milpitas, CA 95035 ◆ U.S.A.
Phone: + 1 (408) 586 6200 ◆ Fax: + 1 (408) 586 6299 ◆ E-mail: info@cetecomusa.com ◆ http://www.cetecom.com
CETECOM Inc. is a Delaware Corporation with Corporation number: 2113686
Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May

1 Assessment

The following is in compliance with the applicable criteria specified in FCC rules Part 15.247 of the Code of Federal Regulations. Only conducted measurements are reported here.

Company	Description	Model #
Palm, Inc	GSM Phone with 802.11 b/g and Bluetooth	P121UEU

This report is reviewed by:

Date	Section	Name	Signature
2010-03-16	EMC & Radio	Marc Douat (Test Lab Manager)	

This report is prepared by:

Date	Section	Name	Signature
2010-03-16	EMC & Radio	Josie Sabado (EMC Project Engineer)	Josie Sabado I am the author of this document

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Responsible Test Lab Manager:	Heiko Strehlow
Responsible Project Leader:	Josie Sabado

2.2 Identification of the Client

Applicant's Name:	Palm, Inc.
Street Address:	950 W. Maude Ave
City/Zip Code	Sunnyvale, CA 94085-2801
Country	USA
Contact Person:	Julia Luke
Phone No.	(408) 617-8597
e-mail:	Julia.Luke@palm.com

2.3 Identification of the Manufacturer

Same as above client.

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

Model No:	P121UEU
Product Type:	GSM Cellular Phone
Hardware Revision :	DVT2B
Software Revision :	Utility Software Build: 920
FCC-ID:	O8F-PIXYW
Frequency:	2400-2483.5 MHz
Type(s) of Modulation:	CCK, OFDM
Number of channels:	11
Antenna Type:	Integral
Equipment Classification:	☐Fixed ☐Vehicular ■Portable ☐Module

3.2 Identification of the Equipment under Test (EUT)

EUT #	Serial Number	HW Version	SW Version	Comments
1	PD2BNBR98115	DVT2B	Utility Software Build: 920	Radiated sample
2	PD2BNBR98112	DVT2B	Utility Software Build: 920	Conducted sample

3.3 Identification of Accessory equipment

AE #	Type	Manufacturer	Model	Serial Number	Part Number
1	Battery	Palm	N/A	D298AW18D1BDC090810	157-10119-00
2	Inductive Charging Dock	Palm	N/A	N/A	157-10123-00
3	Inductive Back Cover	Palm	N/A	P29BJ0L4C4A	180-10763-00
4	Headset	Palm	N/A	N/A	180-10632-00
5	AC Adapter #24	Palm	N/A	2B9840MTP2A	157-10124-00
6	AC Adapter #30	Palm	N/A	F298R03TP34	157-10130-00
7	USB Cable	Palm	N/A	N/A	180-10646-00

4 Subject Of Investigation

All testing was performed on the product referred to in Section 3 as EUT. EUT operates in the band 2400-2483.5MHz in 802.11b/g mode. All measurements were made with transmit power set to 13.

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT operating under all operating modes as per requirements listed in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations. The maximization of portable equipment is conducted in accordance with ANSI C63.4

Only conducted measurements shown here.

Replaces previous report number **EMC_ PALMO_070_09001_15.247_WLAN_Conducted**

5 Conducted Measurements

5.1 6dB bandwidth and 99% bandwidth

5.1.1 Limit

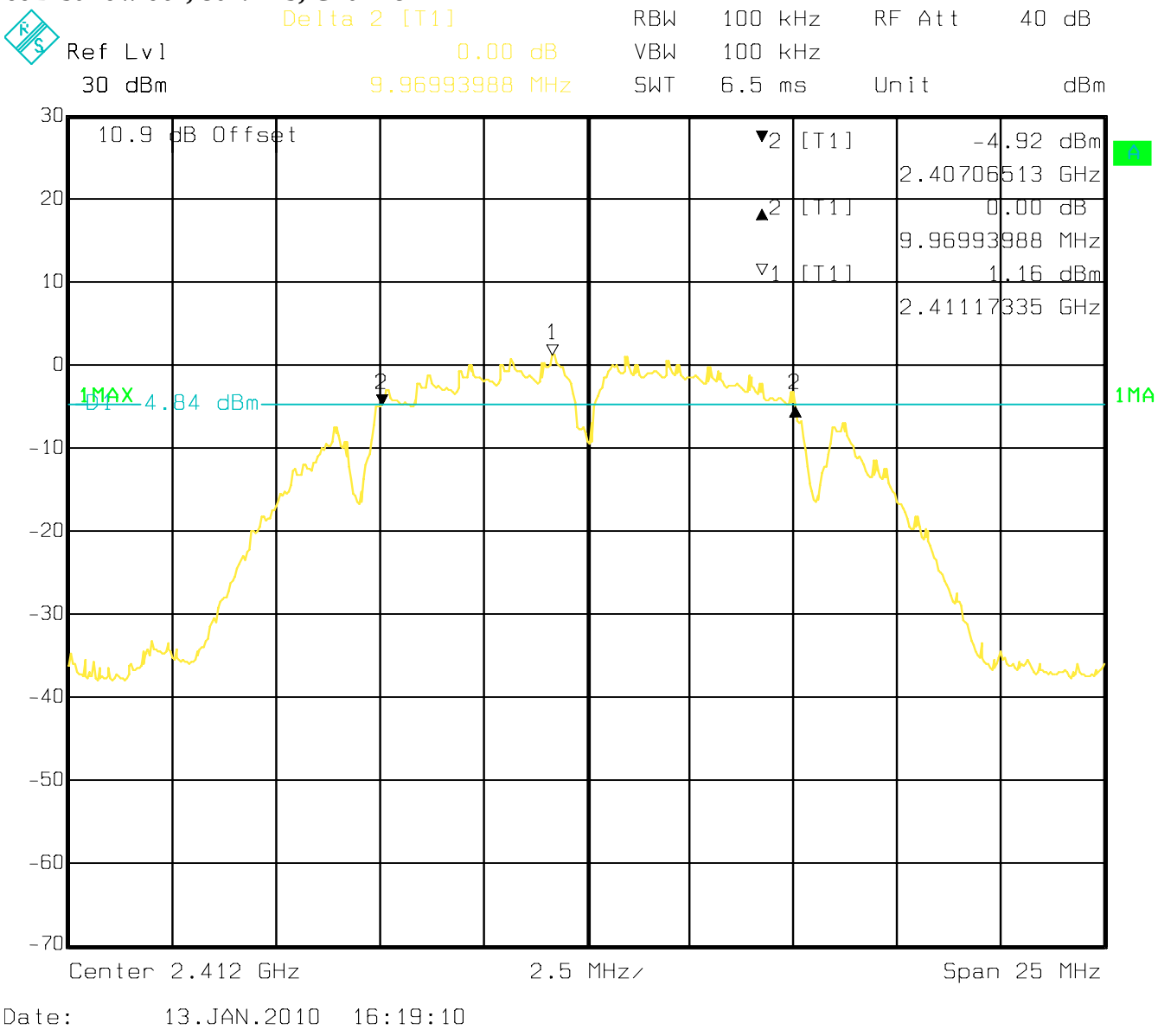
FCC15.247(a)(2) Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.1.2 Measurement Result:

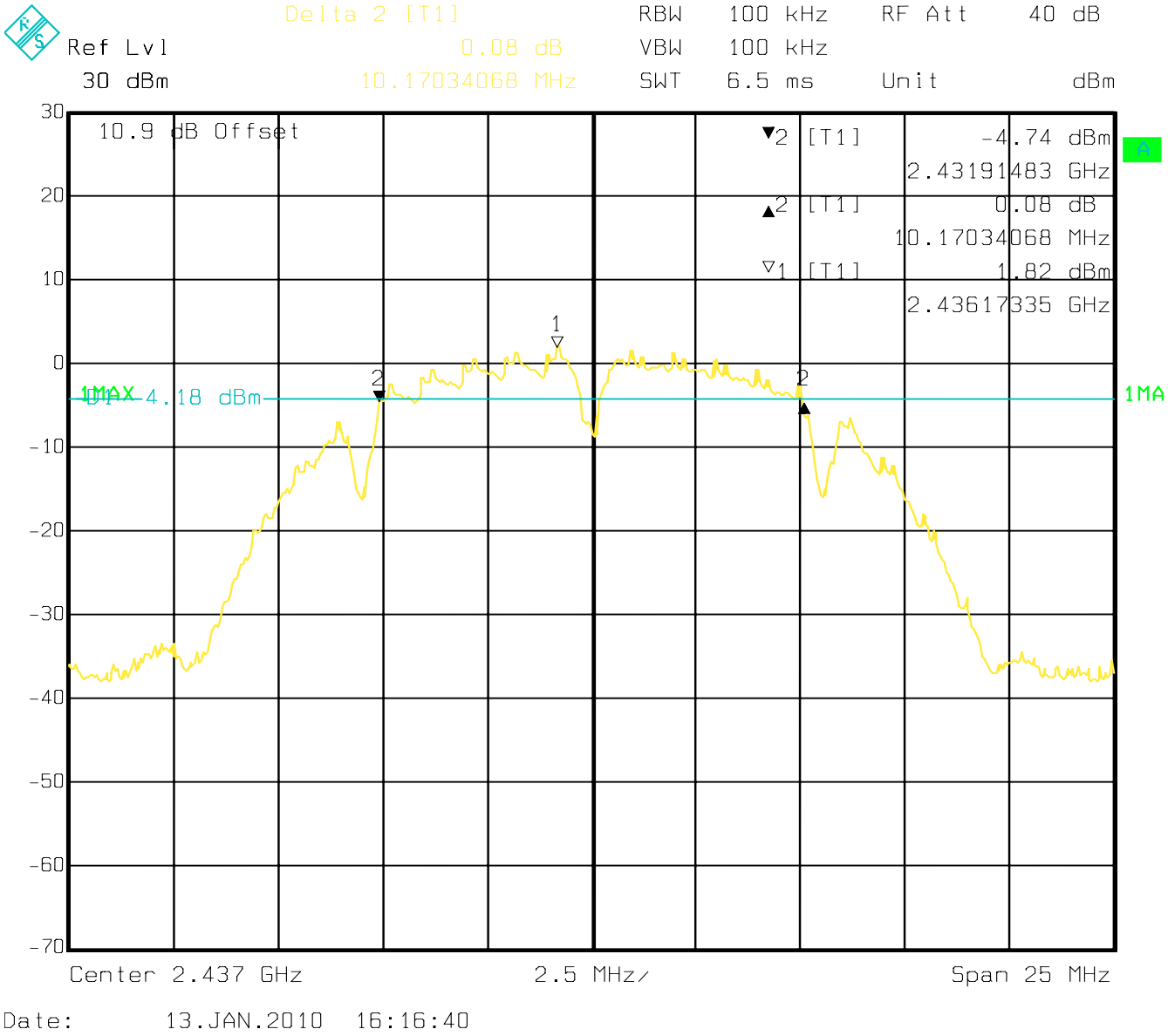
	Channel Frequency (MHz)	6dB Bandwidth (MHz)	20dB/99% Bandwidth (MHz)
2400-2483.5 MHz (802.11 b)	2412	9.97	13.83
	2437	10.17	13.73
	2462	10.12	13.78
2400-2483.5 MHz (802.11 g)	2412	16.63	16.78
	2437	16.63	16.78
	2462	16.68	16.78

5.1.3 Plots:

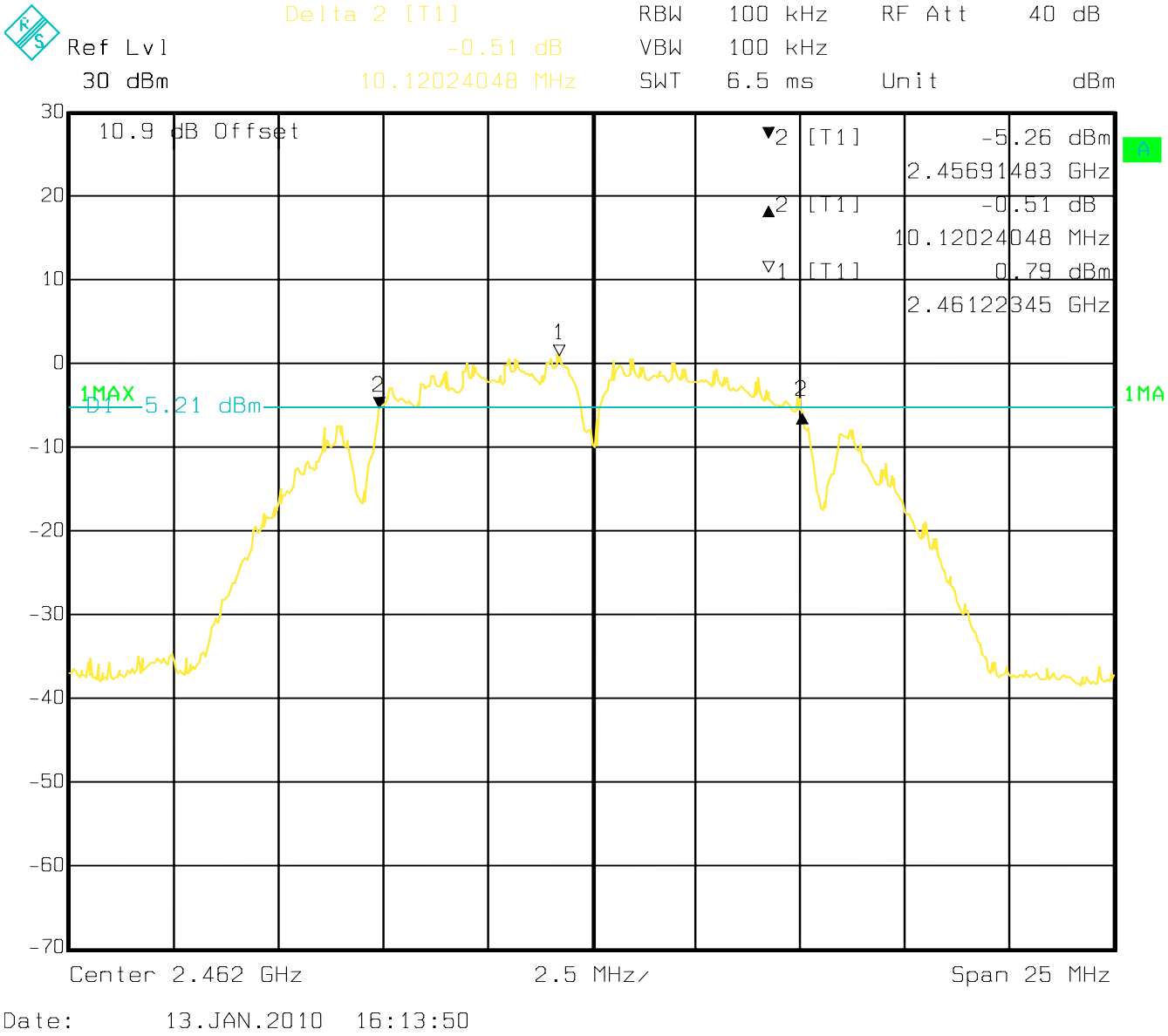
6dB bandwidth, 802.11 b, Channel 1



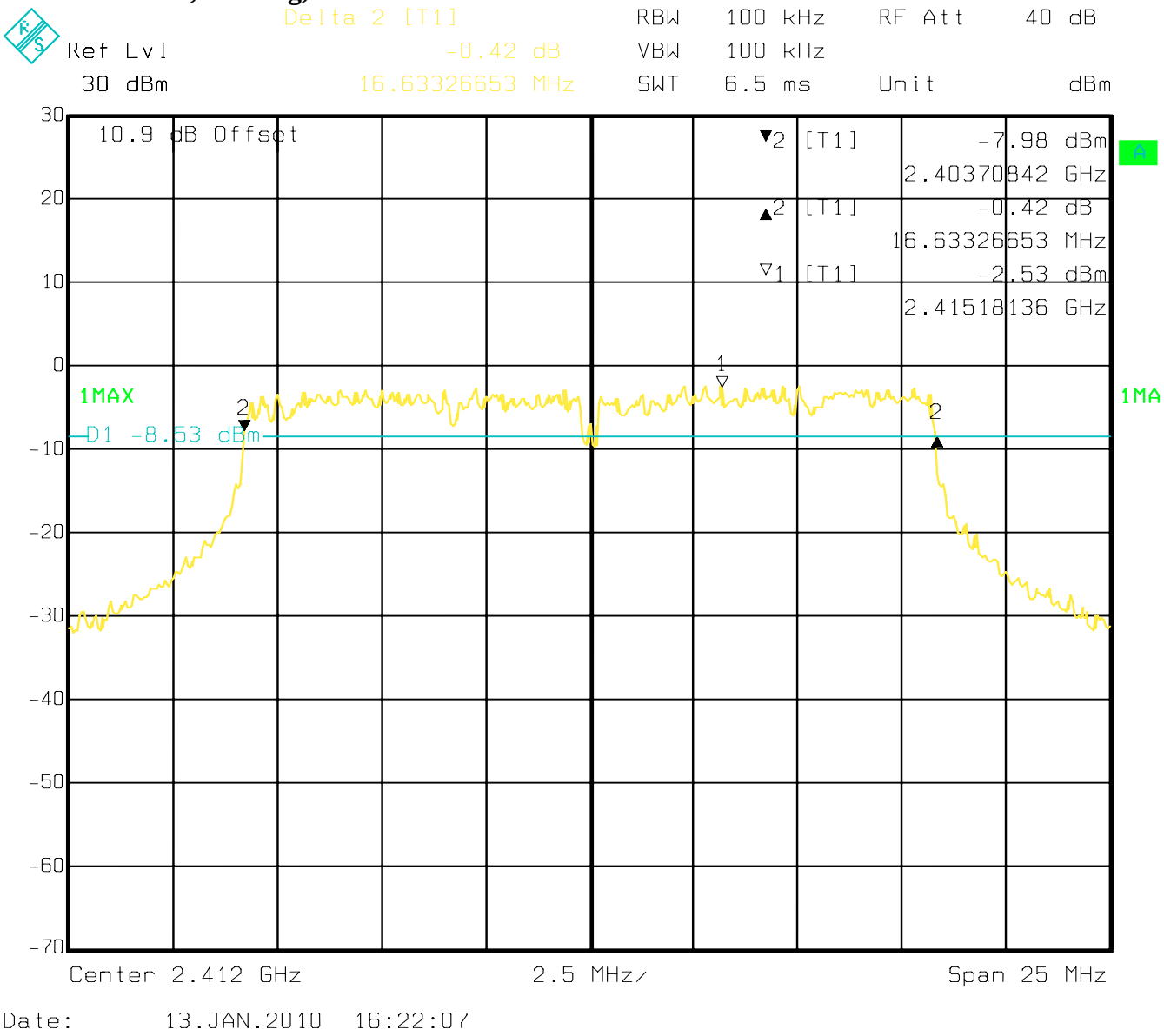
6dB bandwidth, 802.11 b, Channel 6



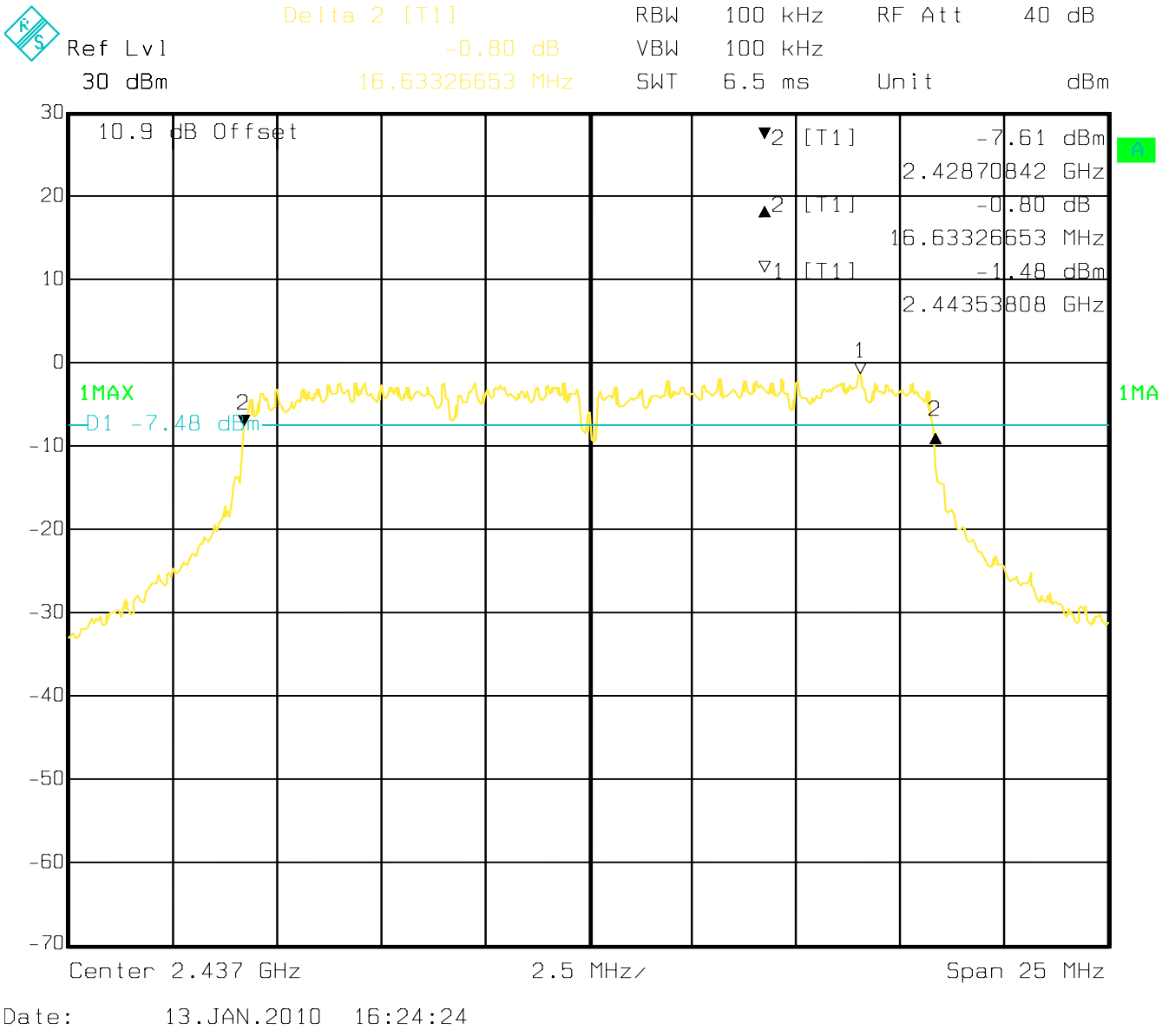
6dB Bandwidth, 802.11 b, Channel 11



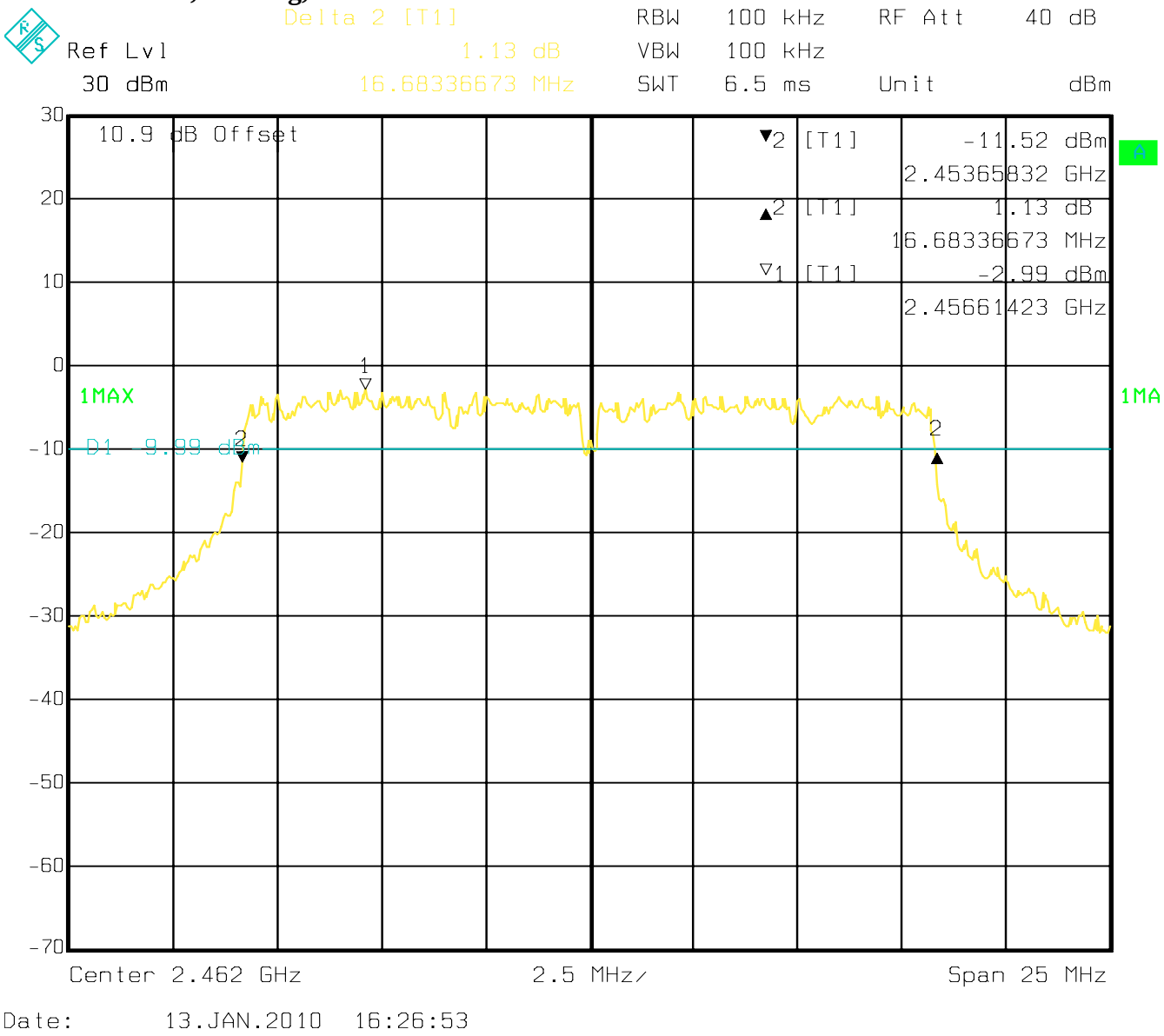
6dB Bandwidth, 802.11 g, Channel 1



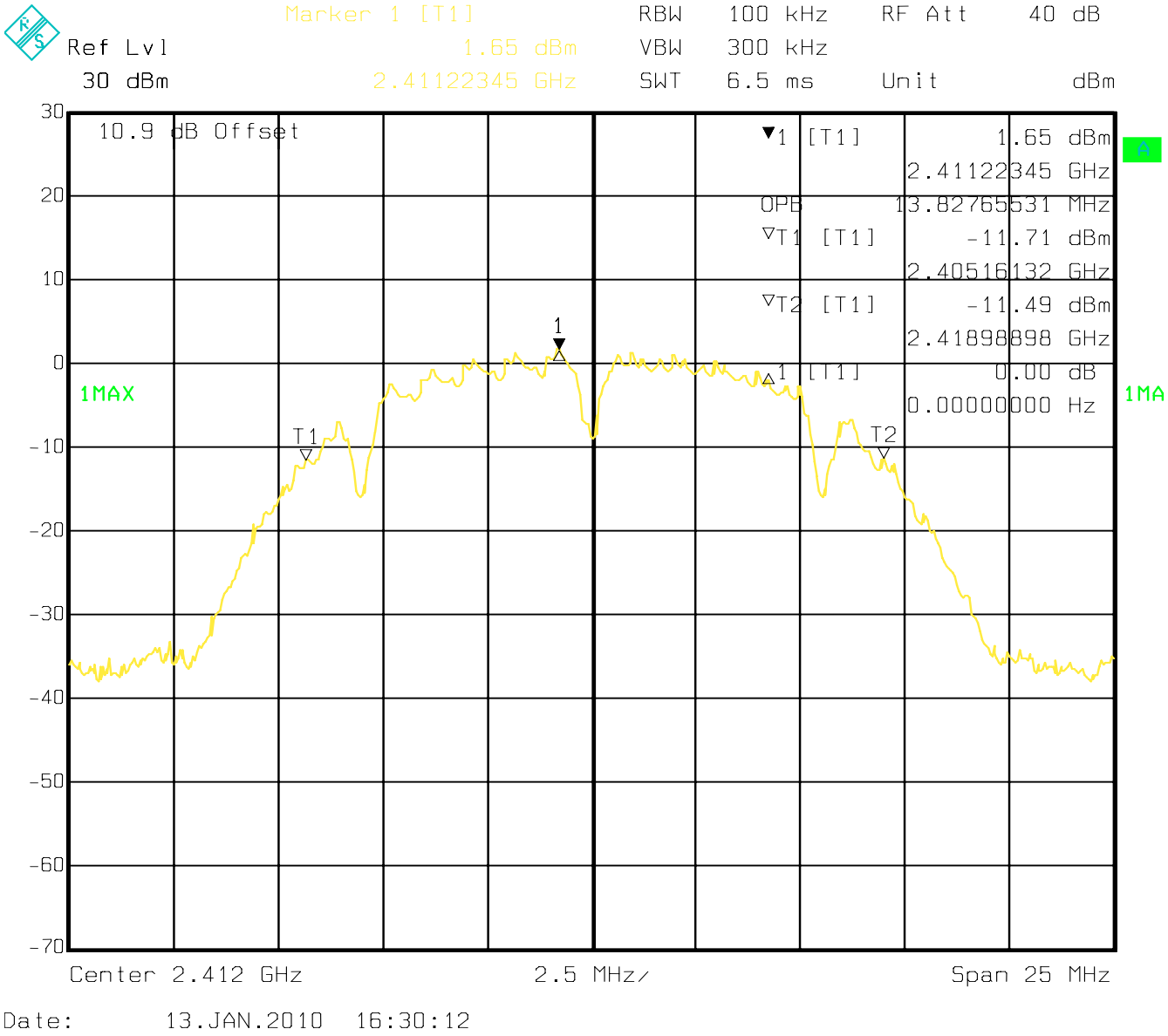
6dB Bandwidth, 802.11 g, Channel 6



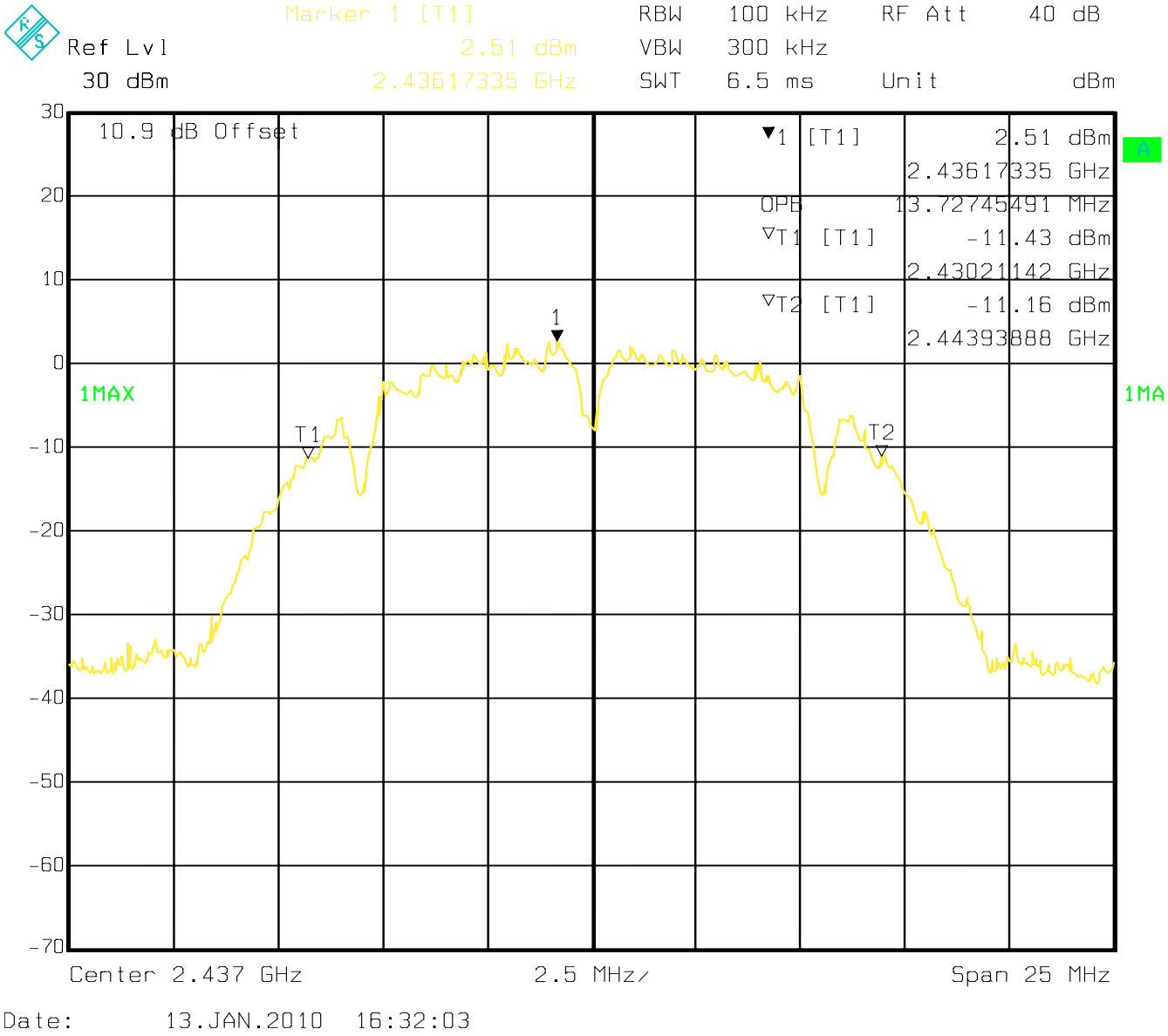
6dB Bandwidth, 802.11 g, Channel 11



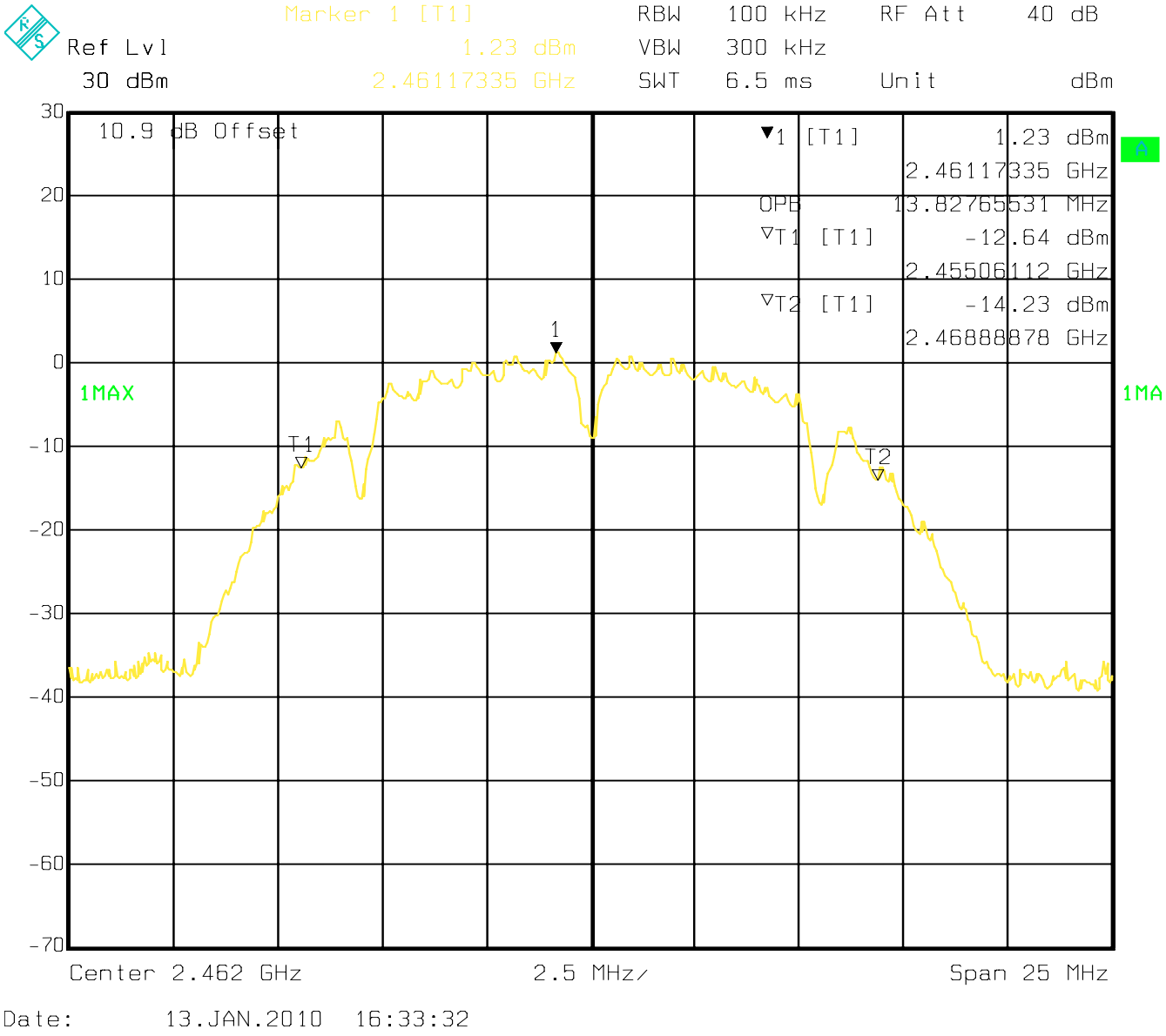
99% Bandwidth, 802.11 b, Channel 1



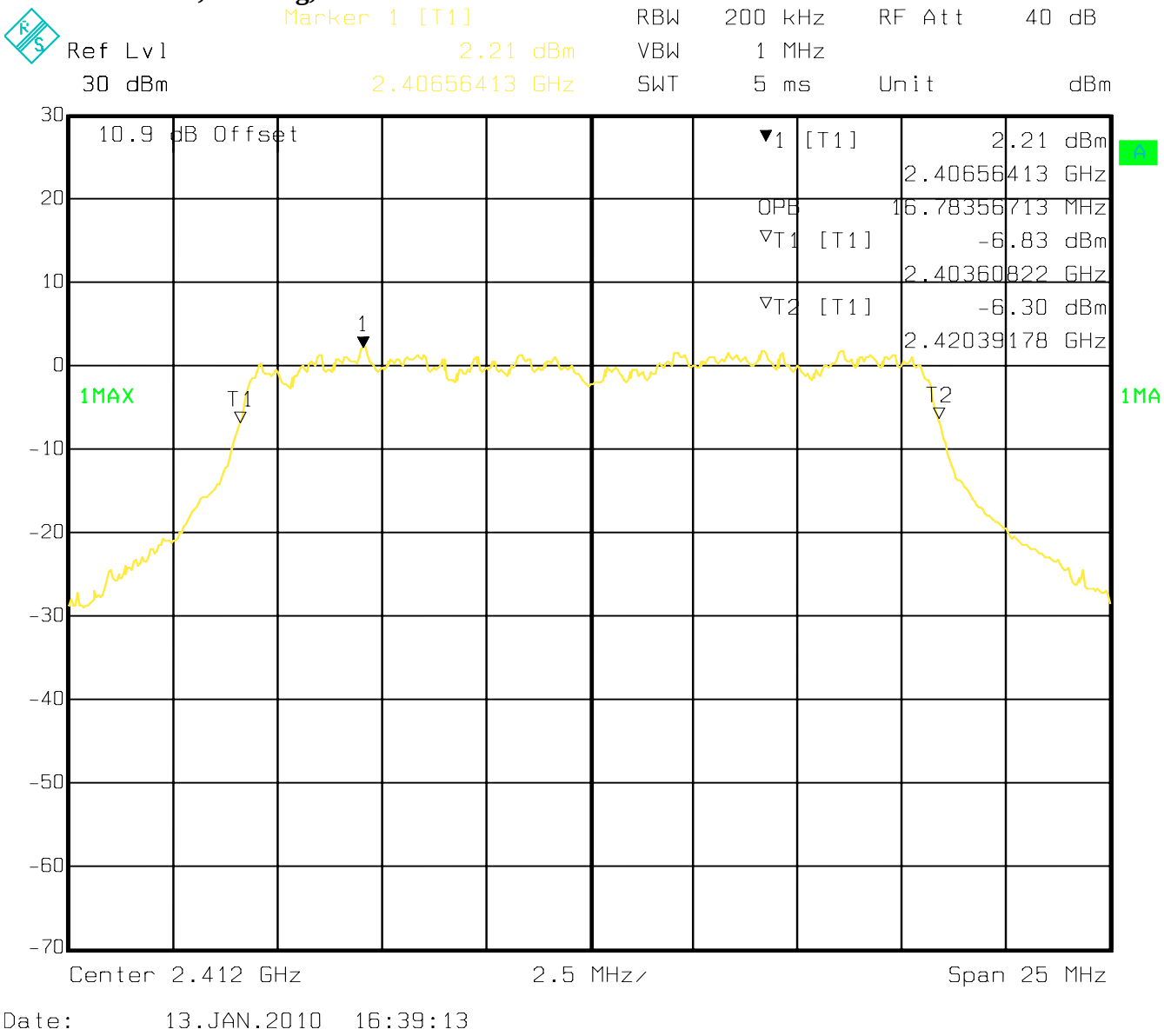
99% Bandwidth, 802.11 b, Channel 6



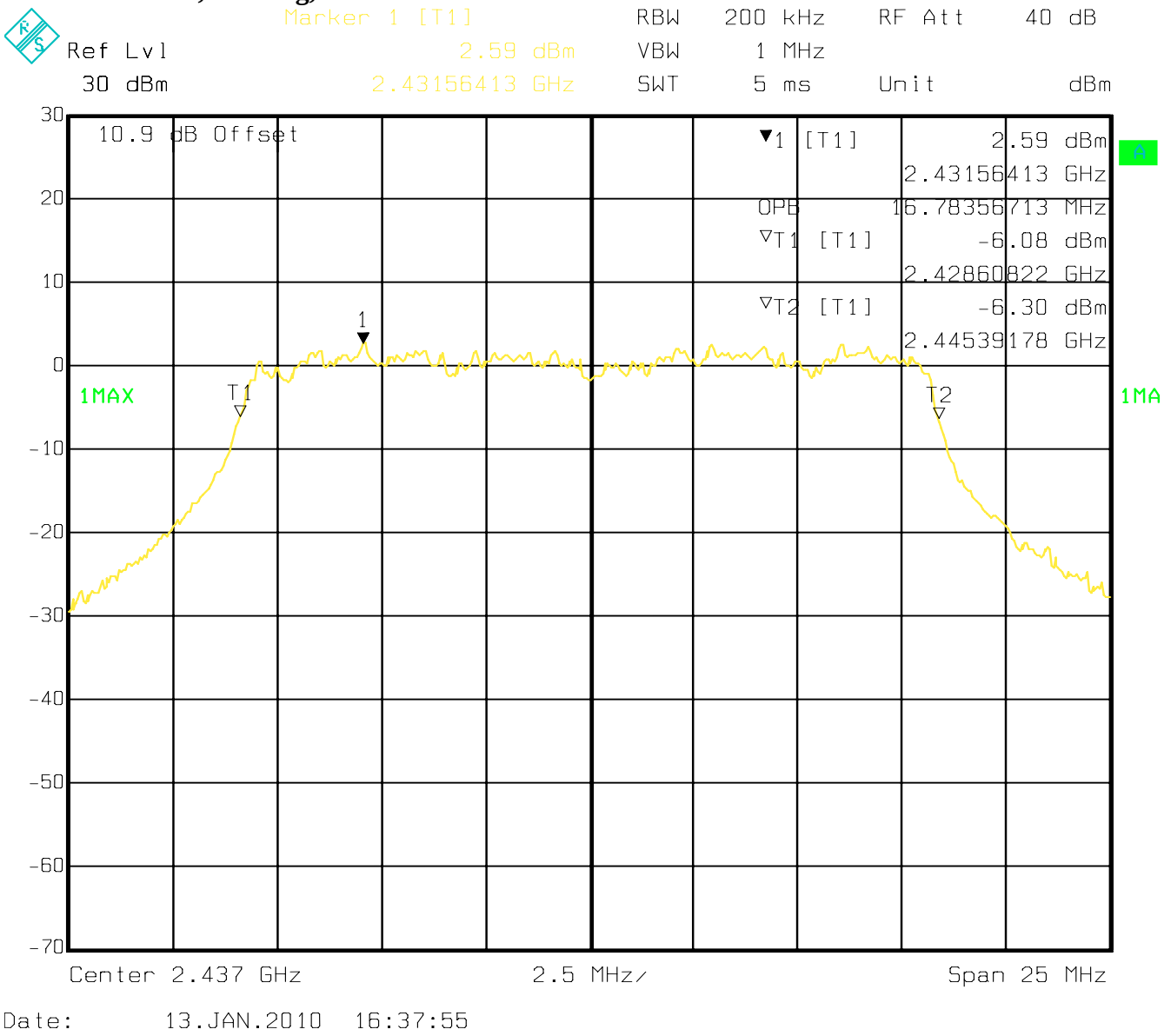
99% Bandwidth, 802.11 b, Channel 11



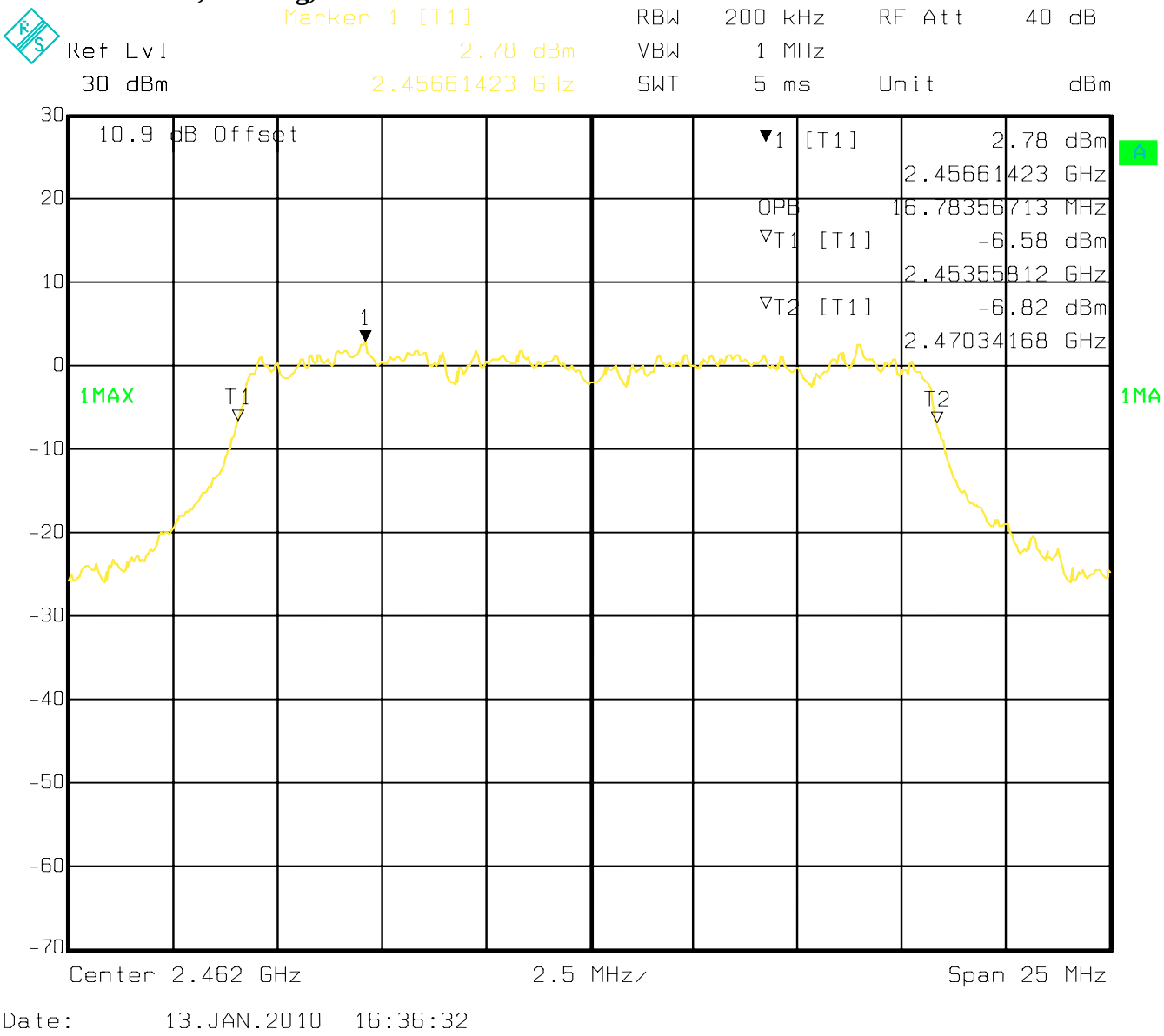
99% Bandwidth, 802.11 g, Channel 1



99% Bandwidth, 802.11 g, Channel 6



99% Bandwidth, 802.11 g, Channel 11



5.2 Conducted Power Measurement

5.2.1 Limit

FCC15.247 (b)(3): For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt

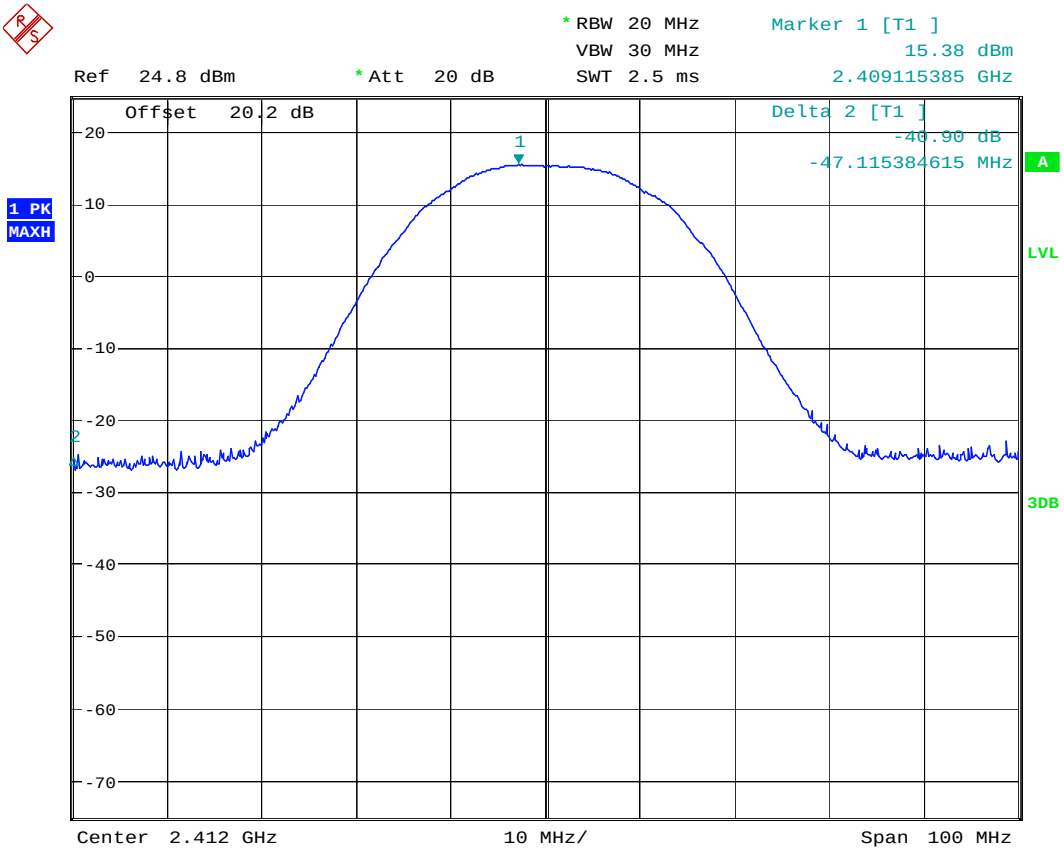
5.2.2 Results

Conducted power measurements were made using a spectrum analyzer and a peak power meter.

TEST CONDITIONS T_{nom}(23)°C, V_{nom}VDC	Channel Frequency	Peak (dBm)	Peak (mW)	Verdict
Sub-band 1: 2400-2483.5MHz (802.11b)	2412	**15.38**	**34.51**	PASS
	2437	**16.33**	**42.95**	PASS
	2462	**15.45**	**35.08**	PASS
Sub-band 1: 2400-2483.5MHz (802.11g)	2412	**20.60**	**114.82**	PASS
	2437	**21.28**	**134.28**	PASS
	2462	**20.21**	**104.95**	PASS

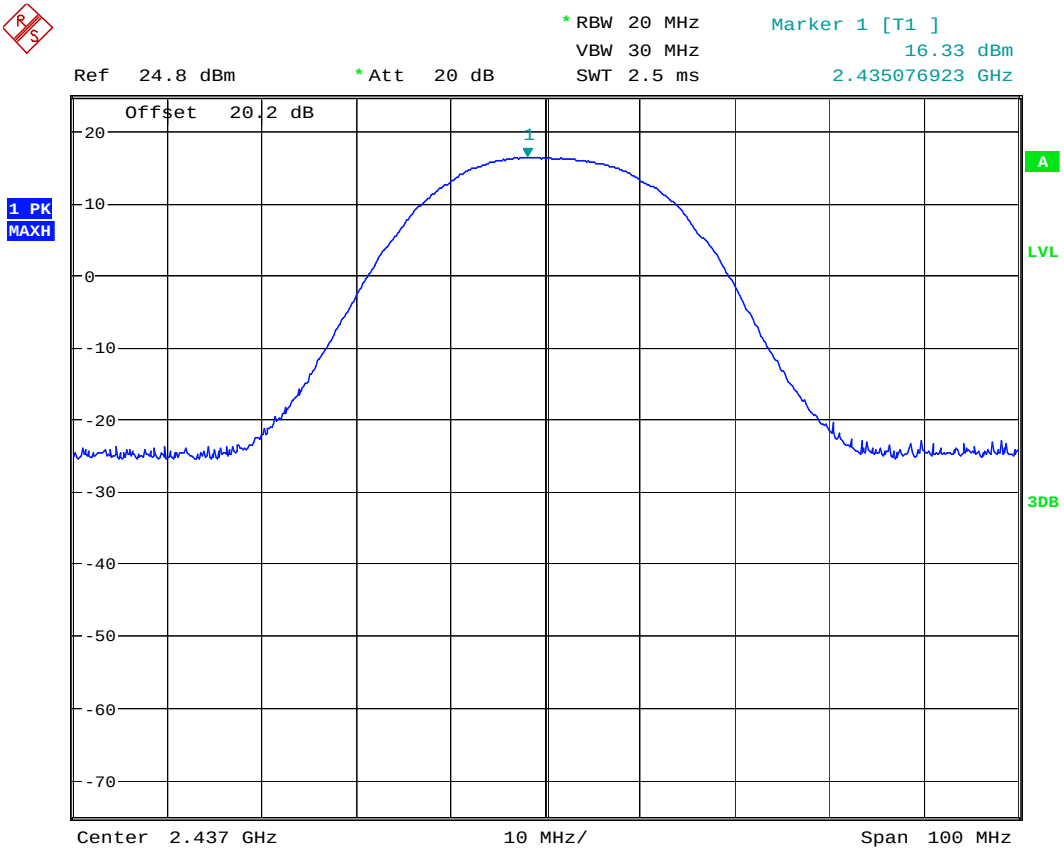
5.2.3 Test Plots:

802.11b 2412MHz



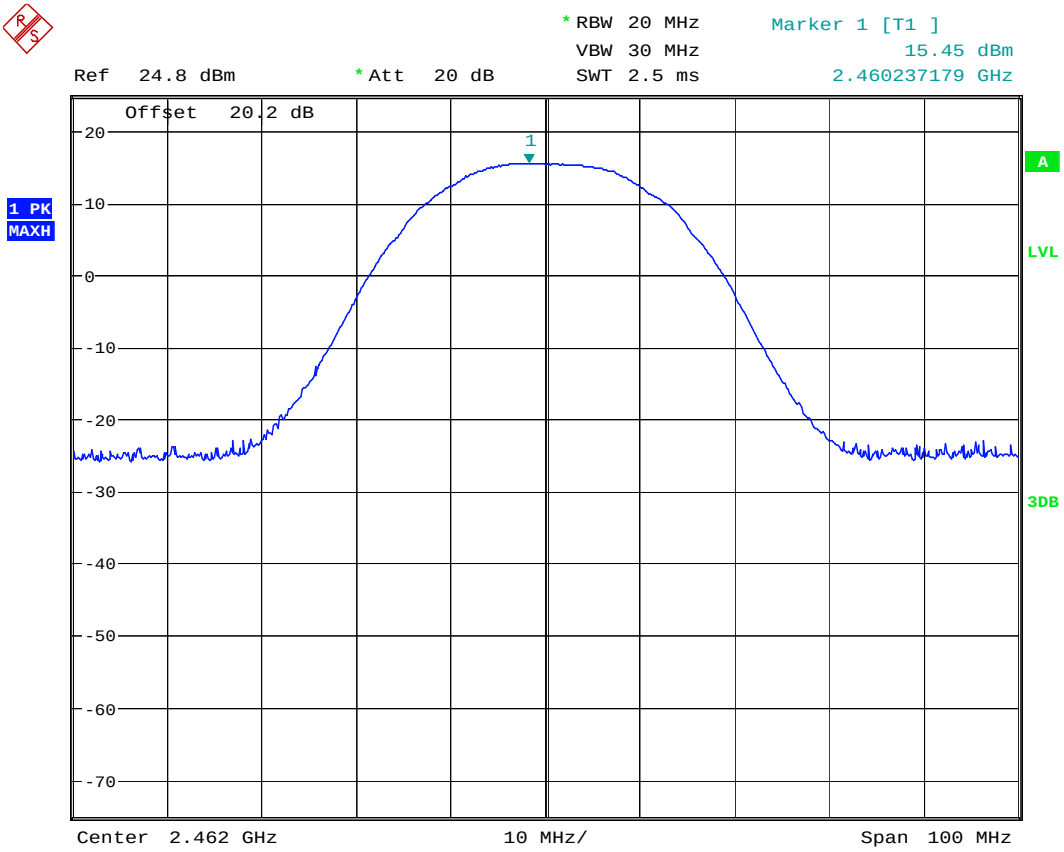
Date: 9.FEB.2010 10:20:18

802.11b 2437MHz



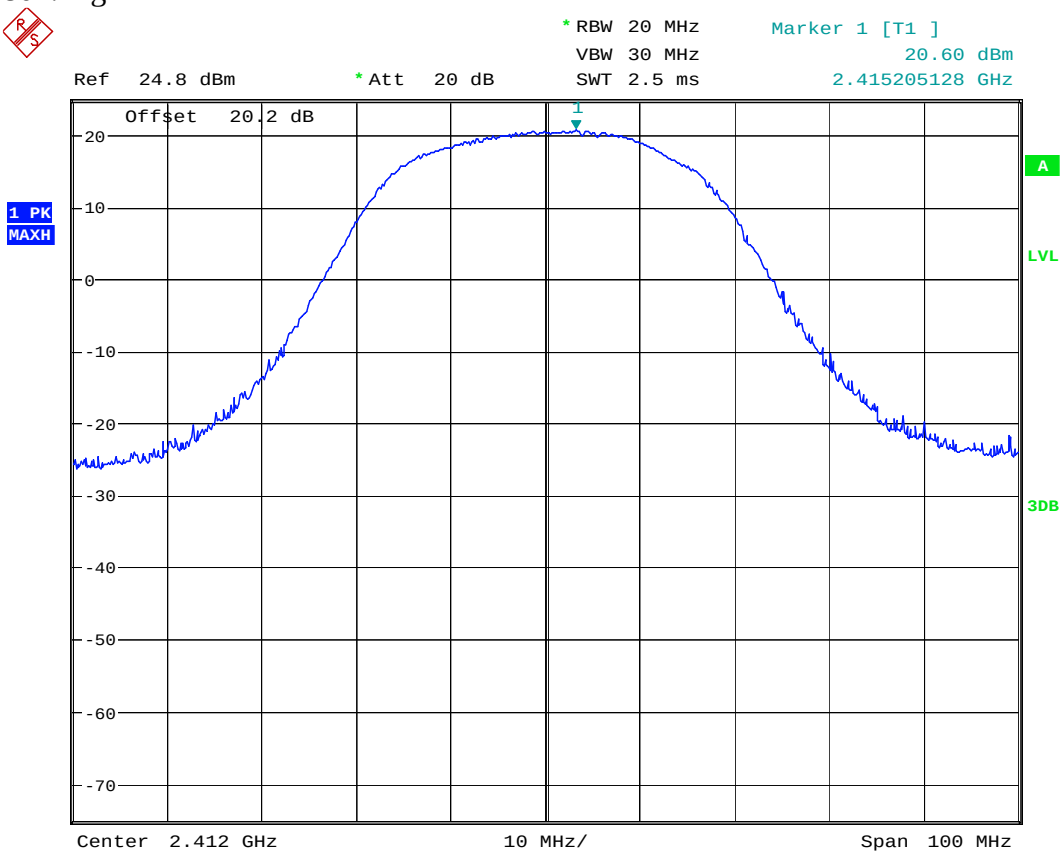
Date: 9.FEB.2010 10:22:17

802.11b 2462MHz



Date: 9.FEB.2010 10:23:17

802.11g 2412MHz



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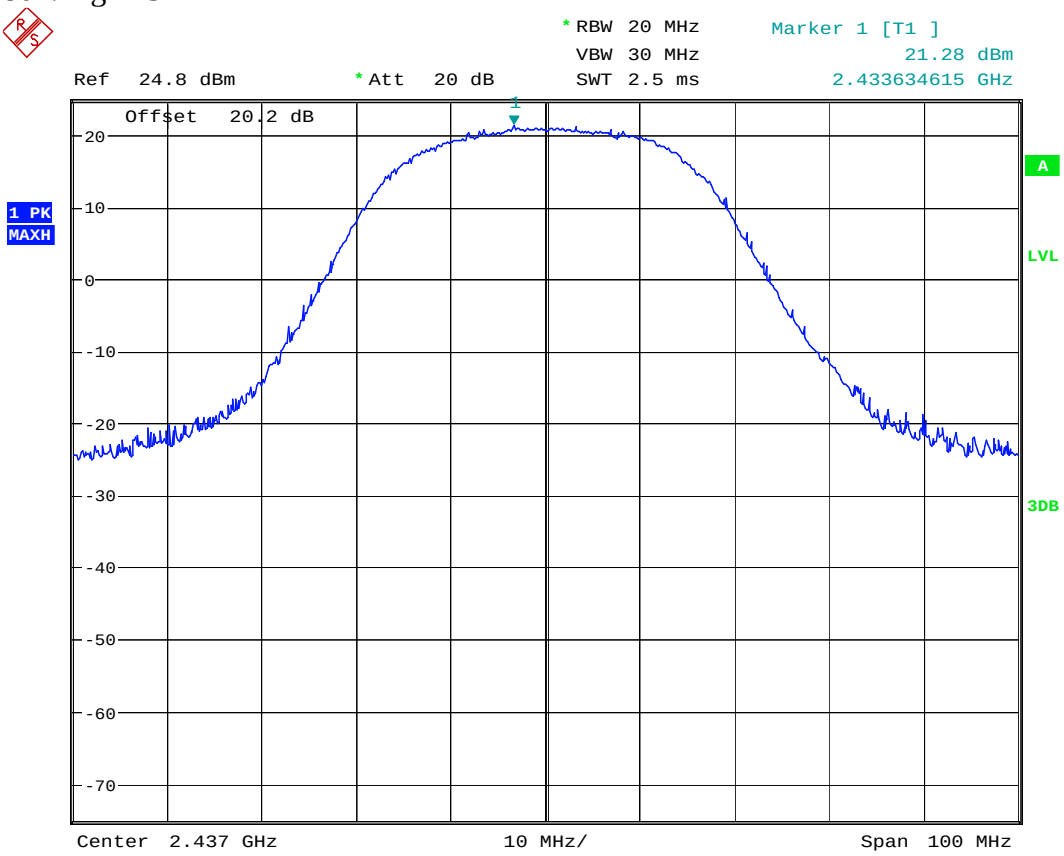
802.11g 2437MHz



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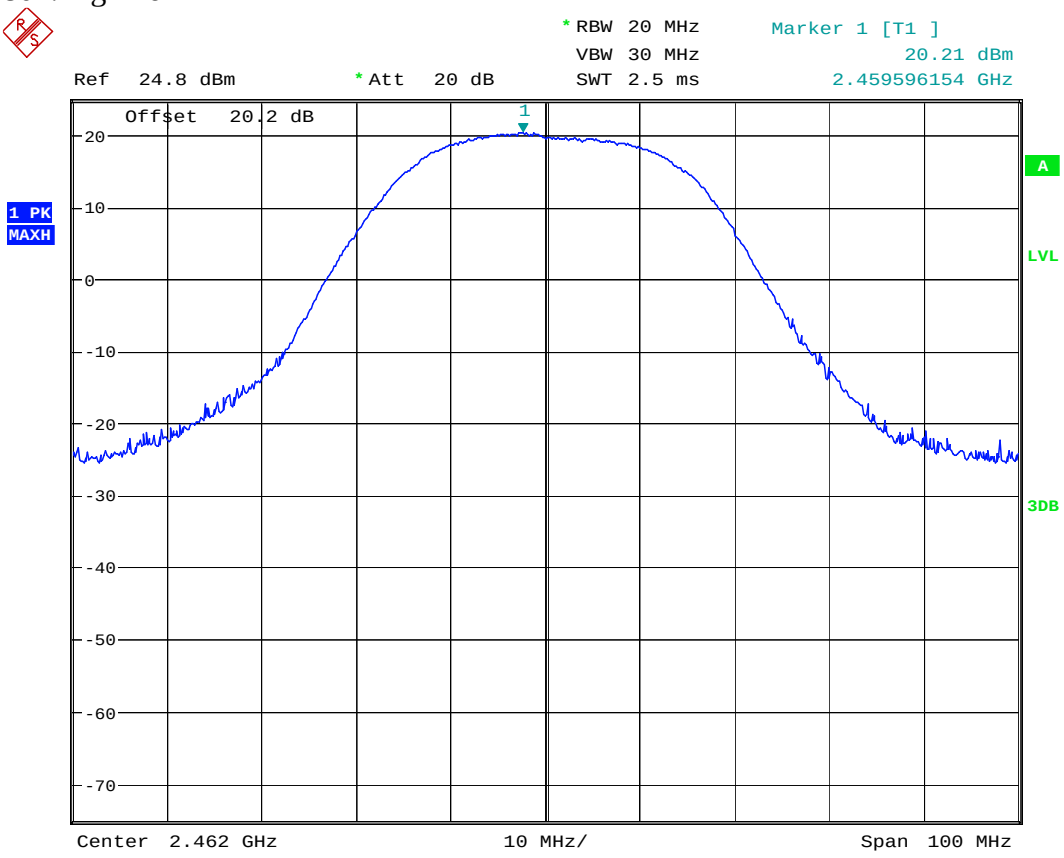
802.11g 2462MHz



Date: 9.FEB.2010 10:24:13

5.3 Power Spectral Density

5.3.1 Limit

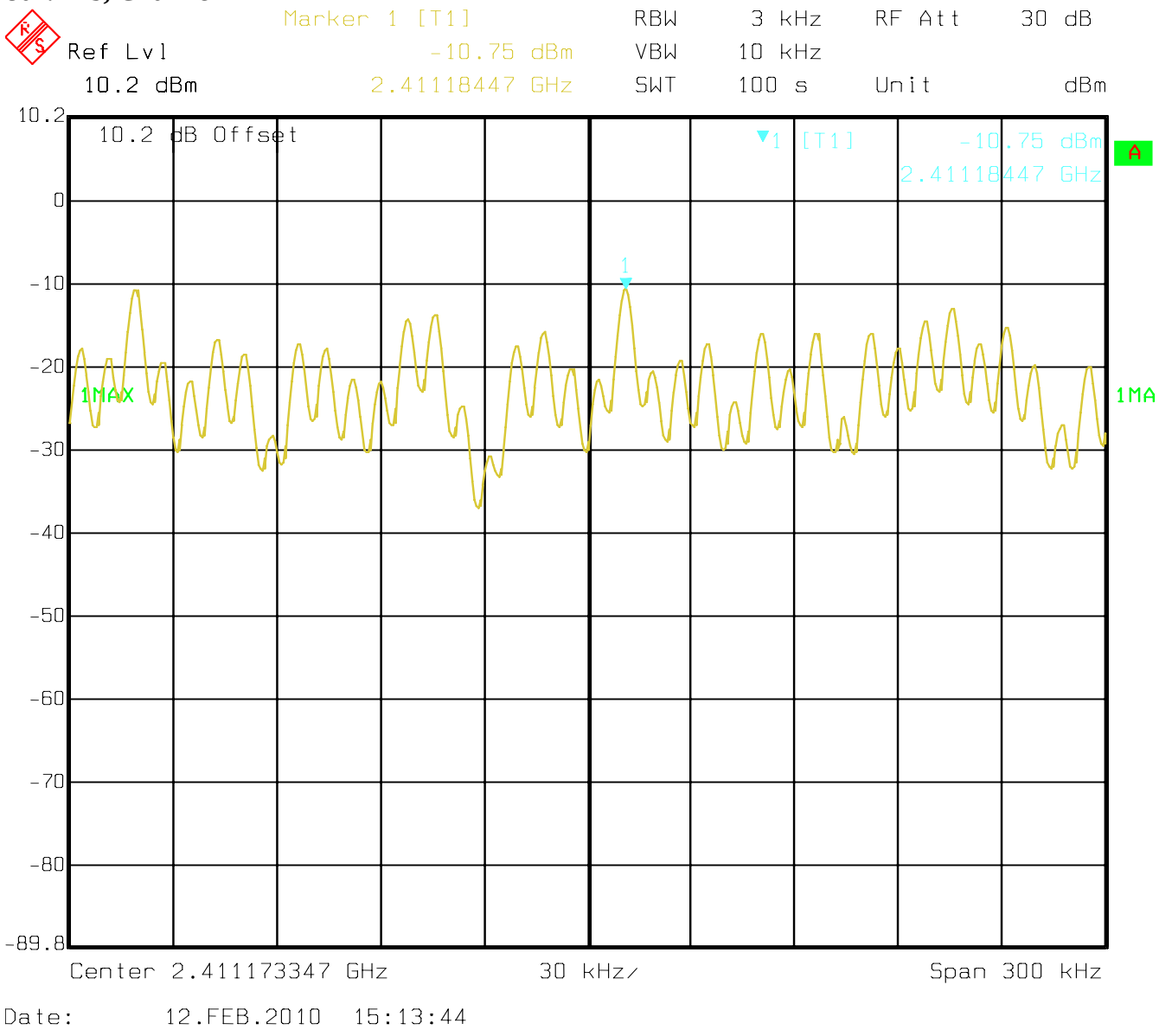
FCC 15.247 (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

5.3.2 Results

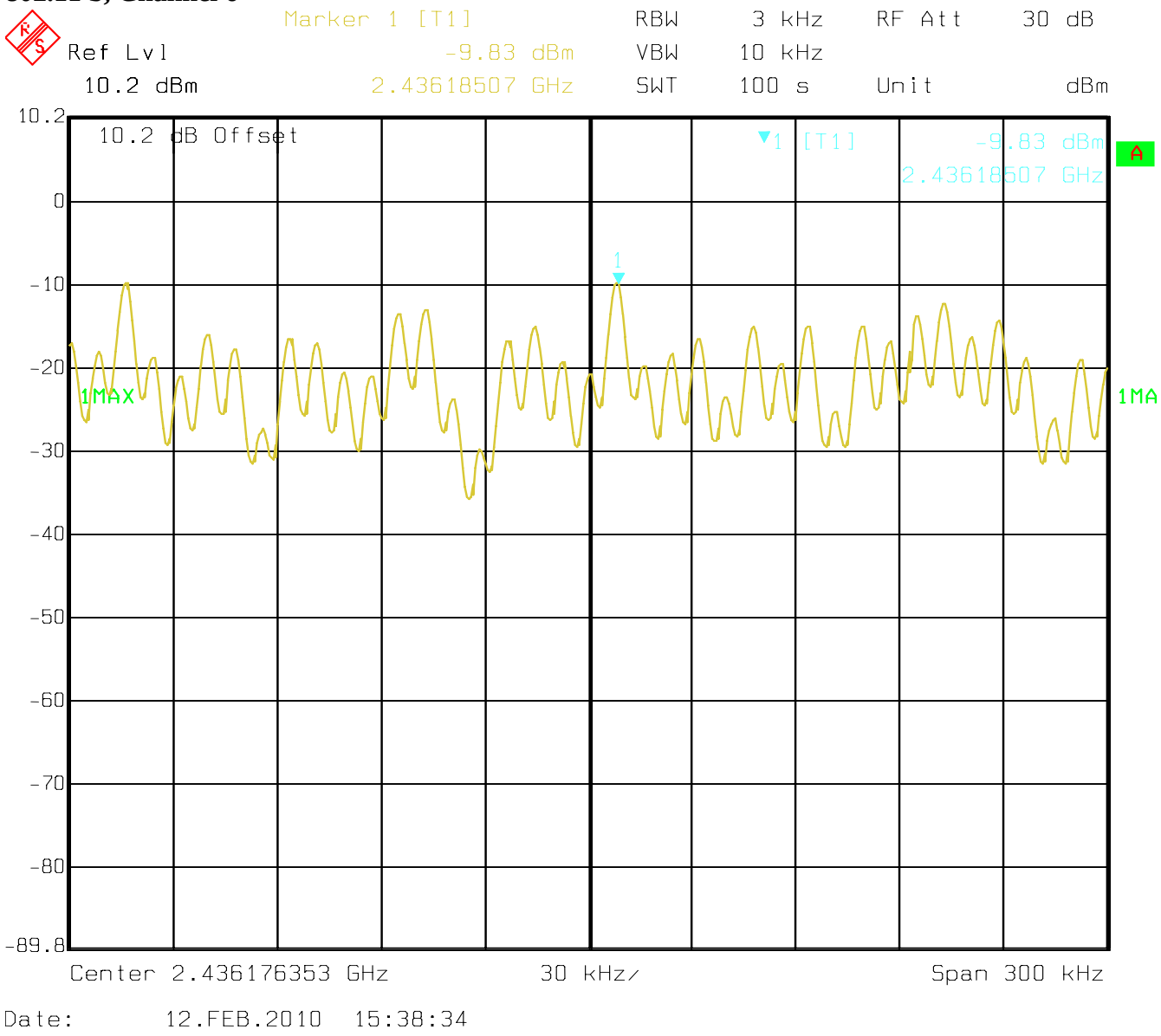
TEST CONDITIONS T_{nom}(23)°C, V_{nom}VDC	Channel Frequency	PSD (dBm)	Verdict
Sub-band 1: 2400-2483.5MHz (802.11b)	2412	**-10.75**	PASS
	2437	**-9.83**	PASS
	2462	**-10.85**	PASS
Sub-band 1: 2400-2483.5MHz (802.11g)	2412	**-16.39**	PASS
	2437	**-17.58**	PASS
	2462	**-17.70**	PASS

5.3.3 Plots

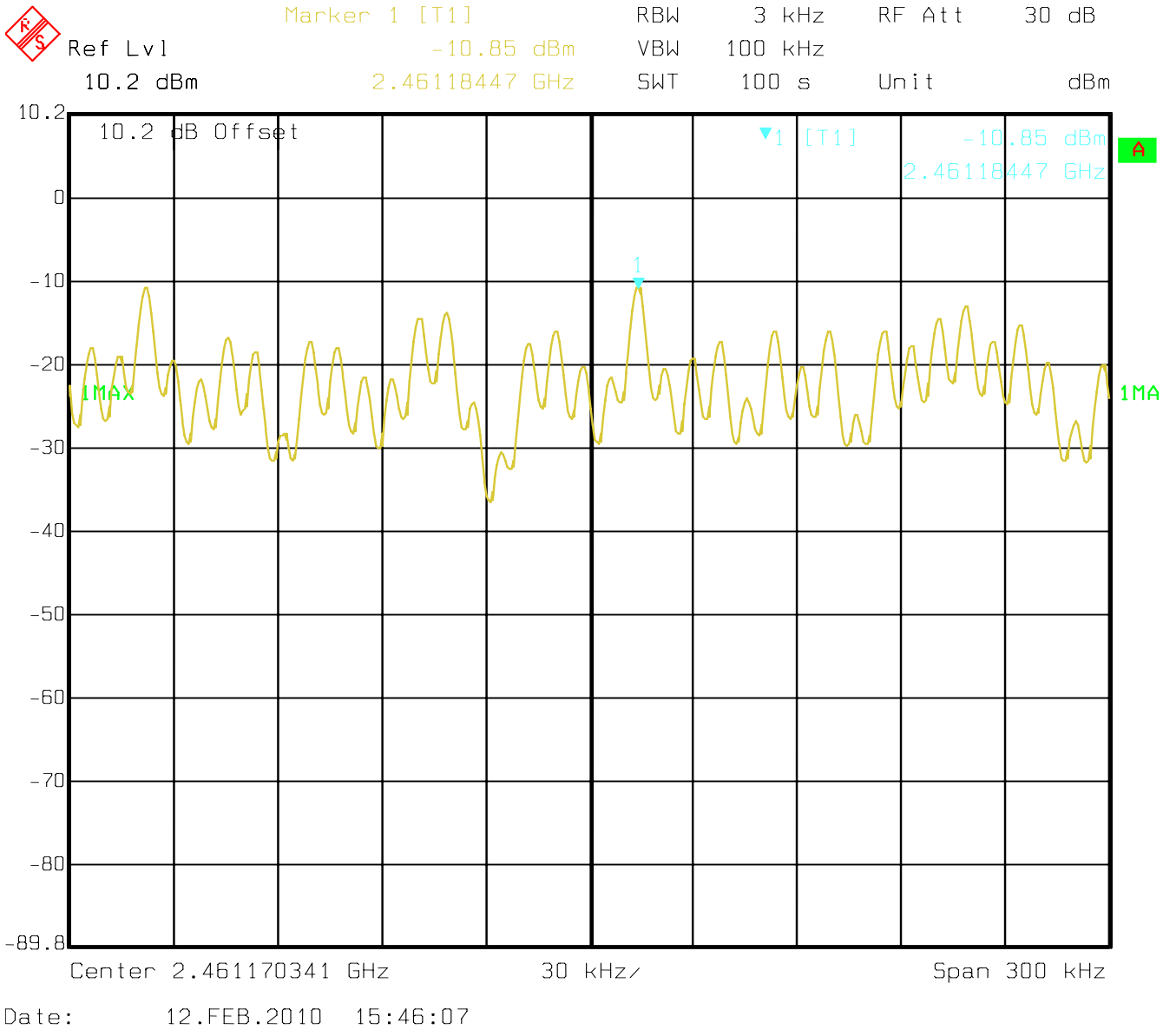
802.11 b, Channel 1



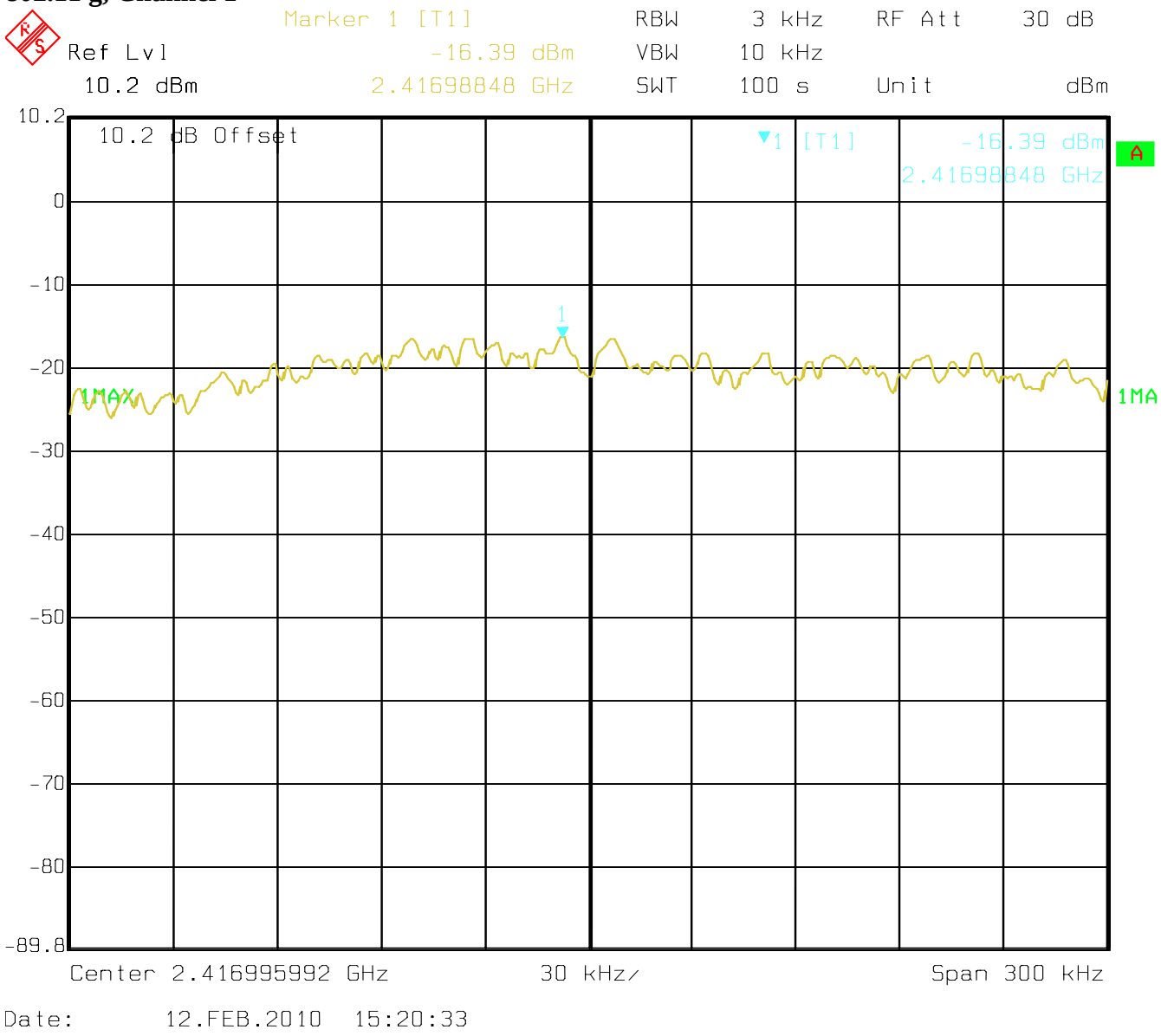
802.11 b, Channel 6



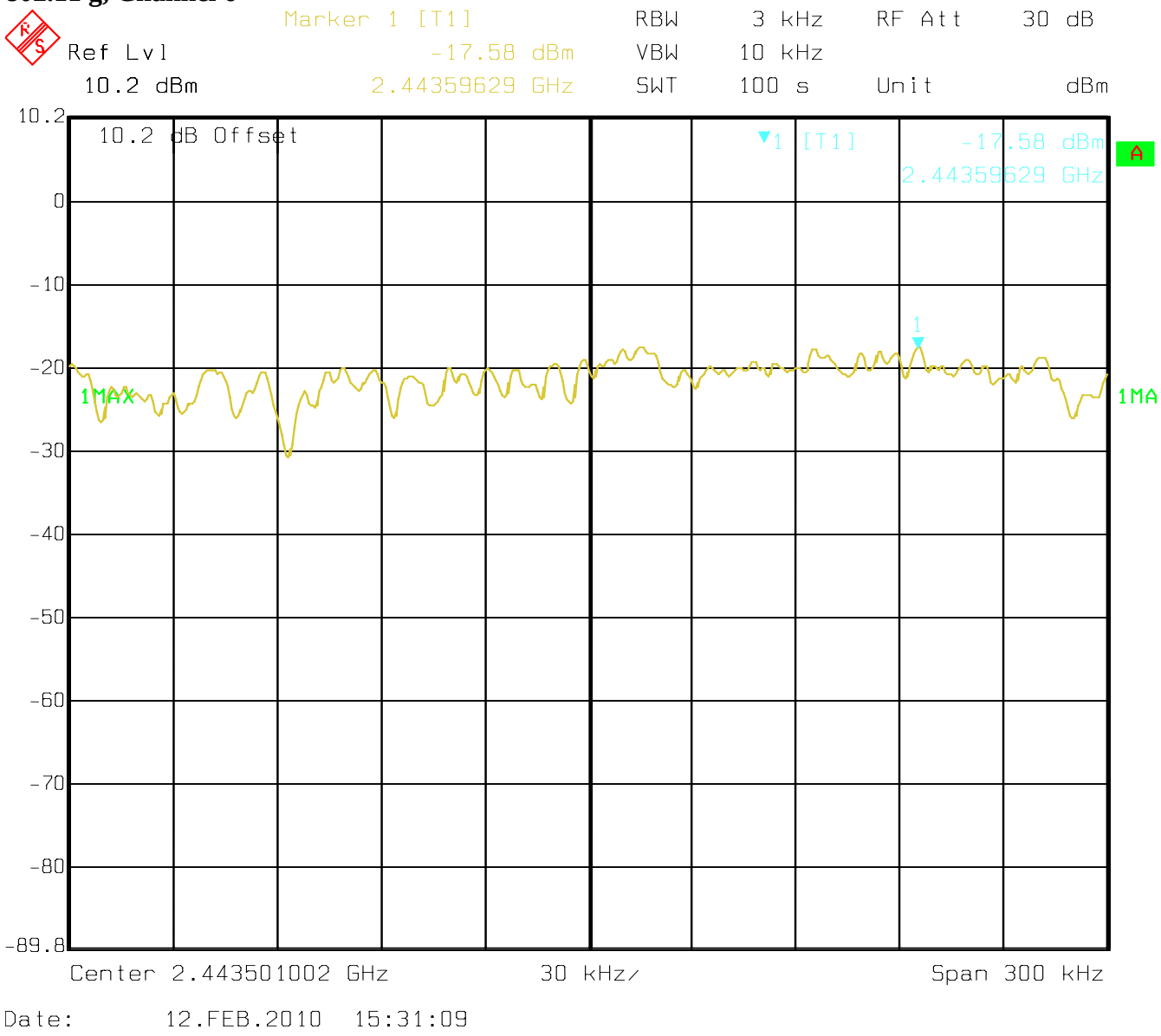
802.11 b, Channel 11



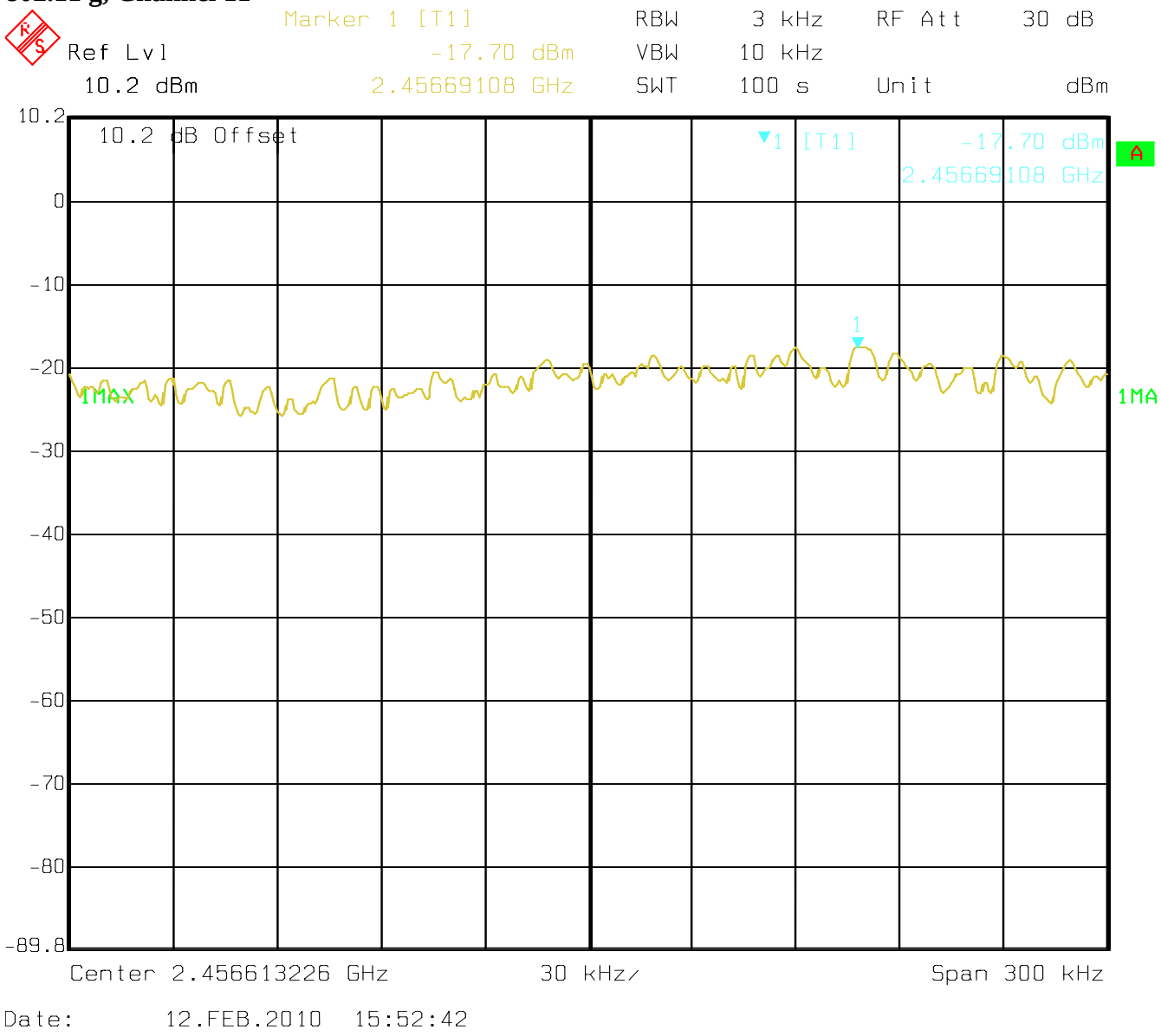
802.11 g, Channel 1



802.11 g, Channel 6



802.11 g, Channel 11



5.4 Conducted Spurious Emission

5.4.1 Limit

§15.247(d): -30dBc

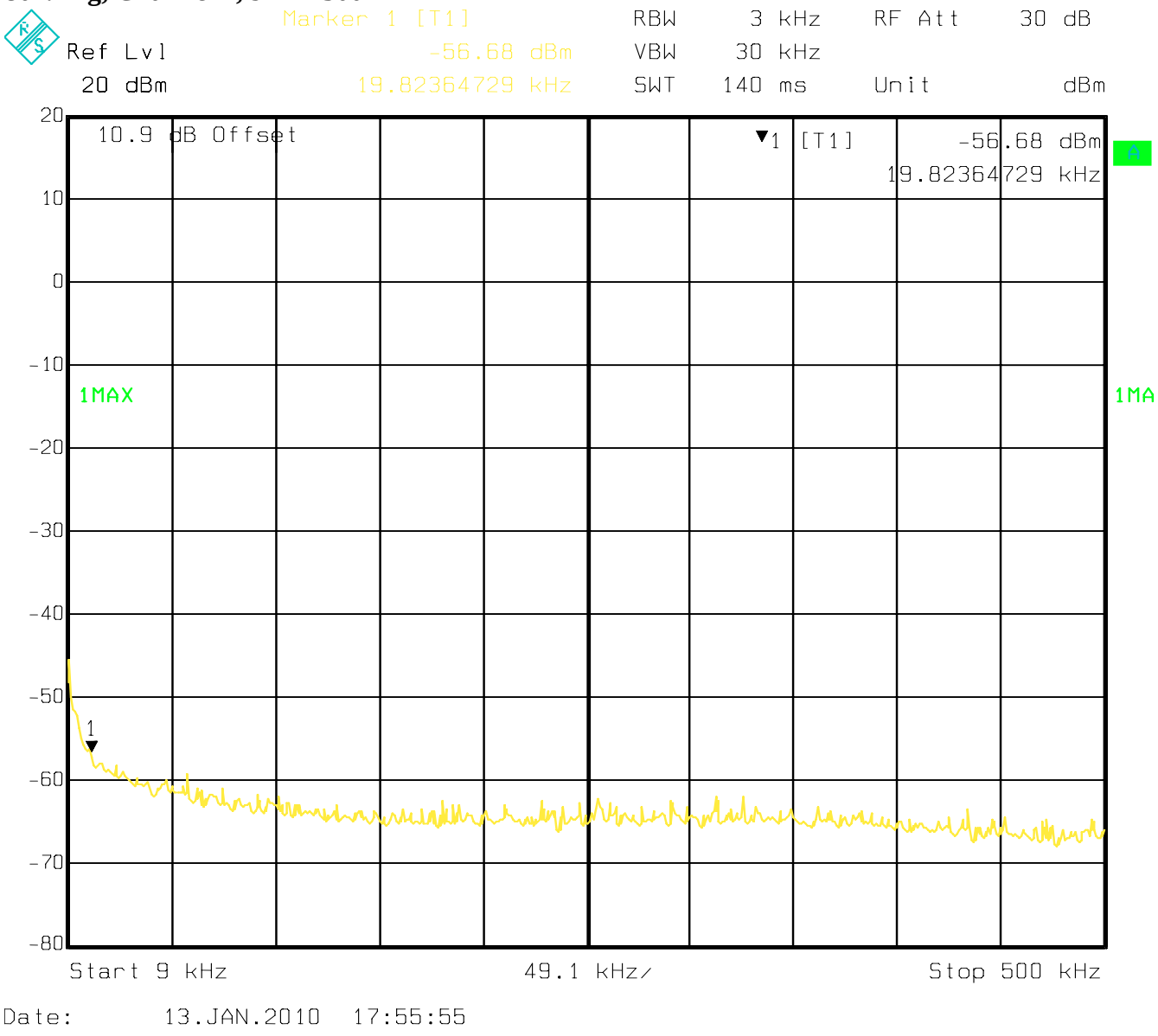
5.4.2 Results:

TEST CONDITIONS T_{nom}(23)°C, V_{nom}VDC	Channel Frequency	Verdict
Sub-band 1: 2400-2483.5MHz (802.11g)	2412	PASS
	2437	PASS
	2462	PASS
Co-location with Bluetooth	BT: 2442 WLAN: 2412	PASS

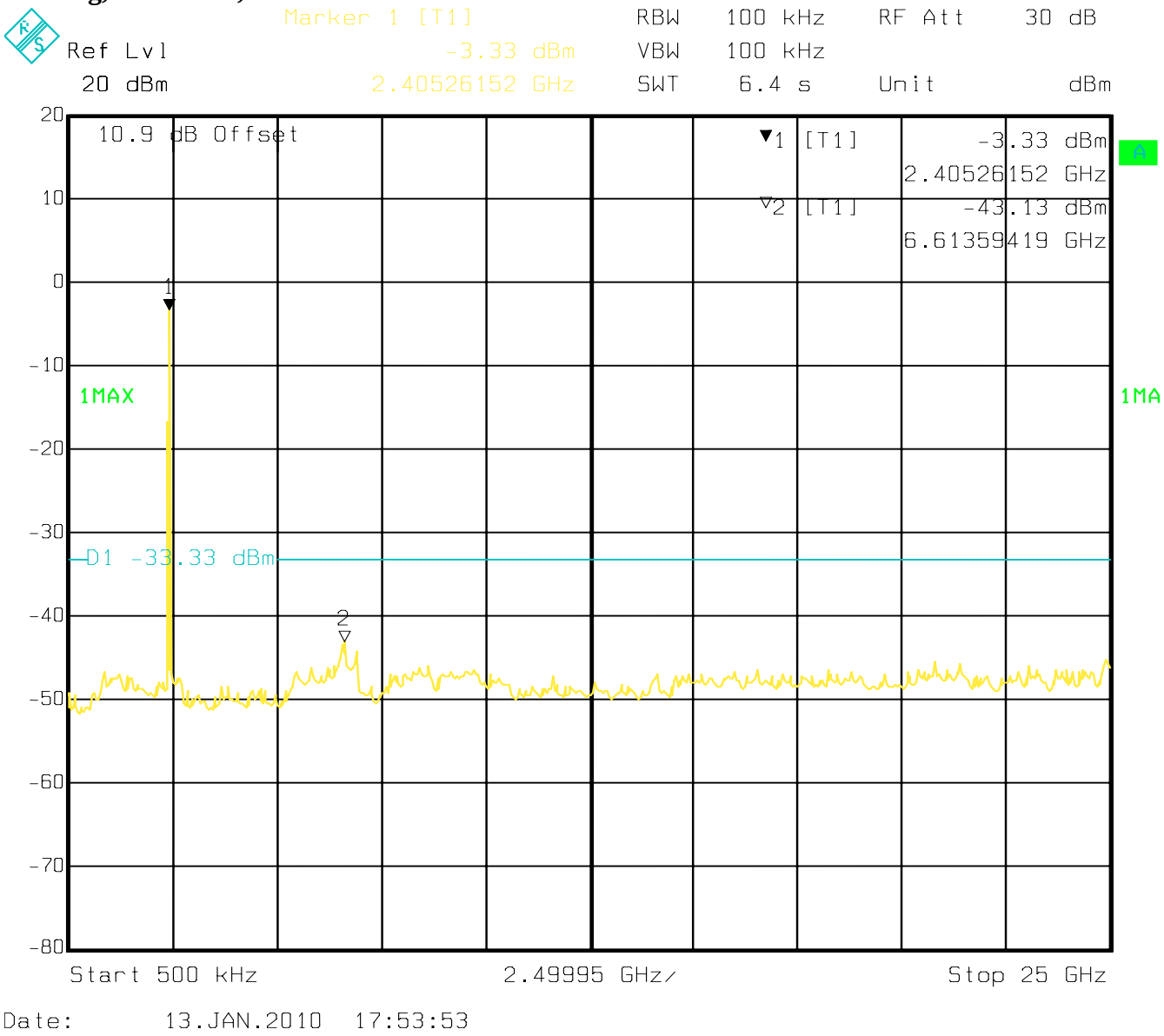
Plots represent worst case of all modes.

5.4.3 Plots

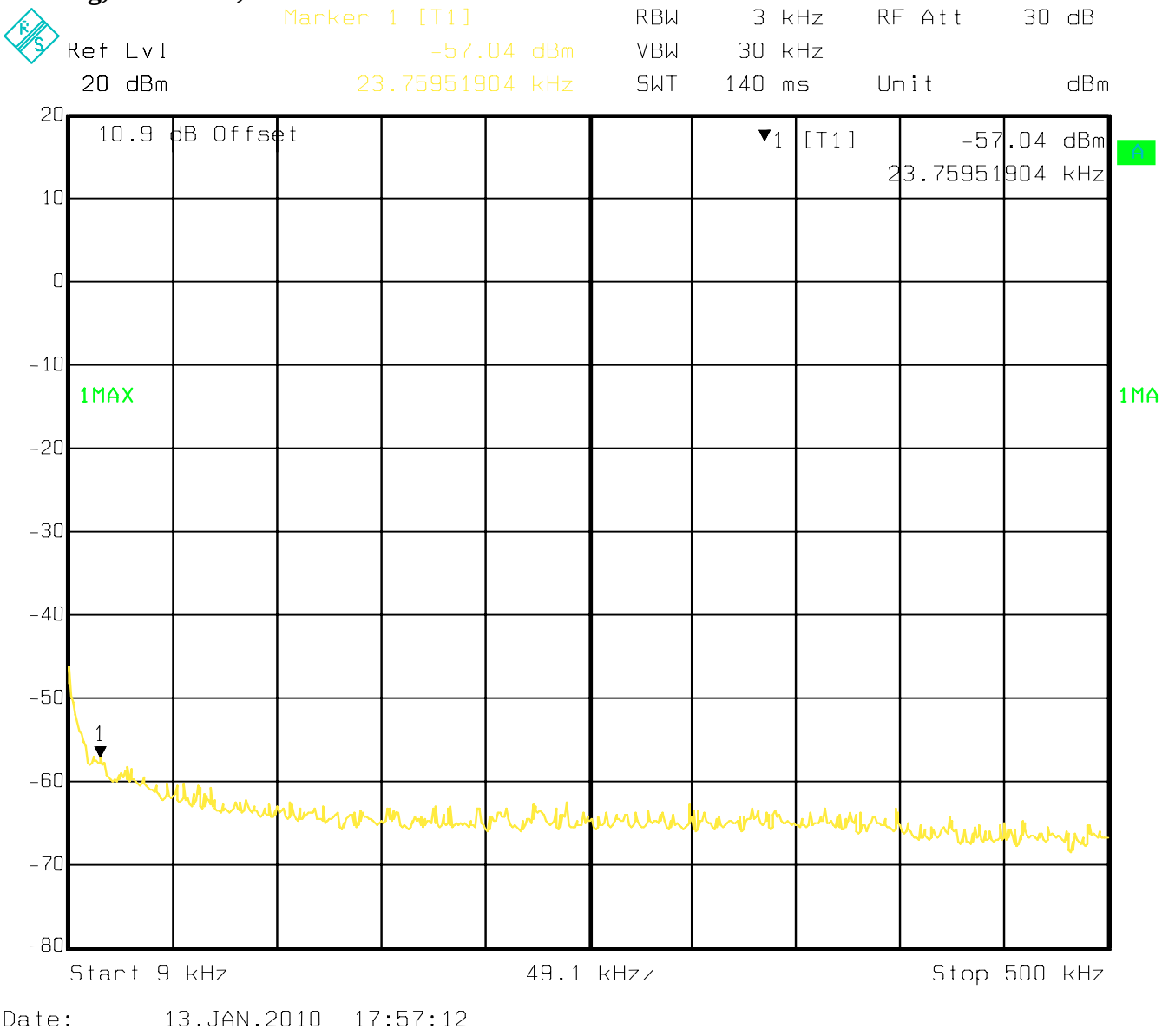
802.11 g, Channel 1, 9kHz-500kHz



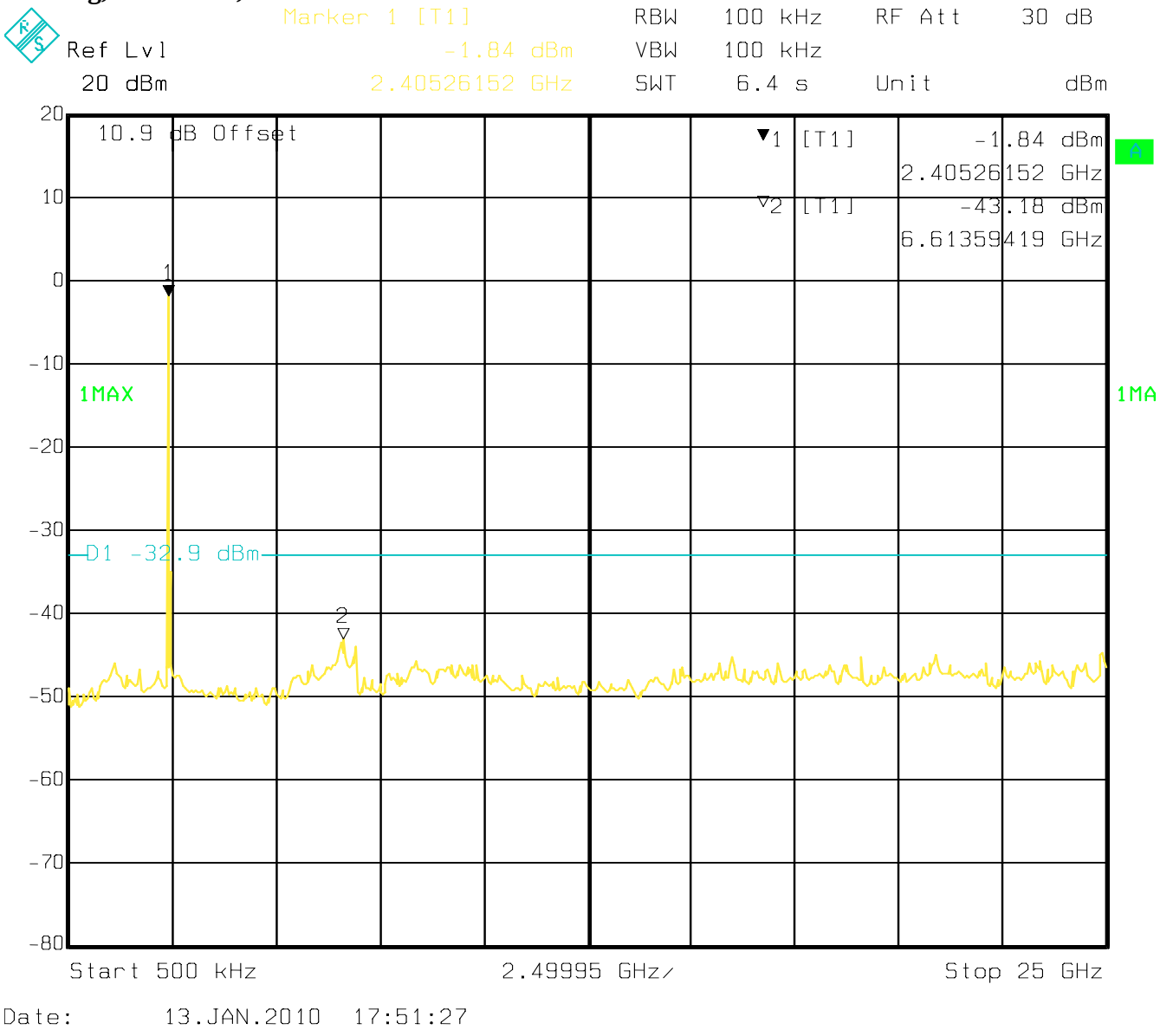
802.11 g, Channel 1, 500kHz-25GHz



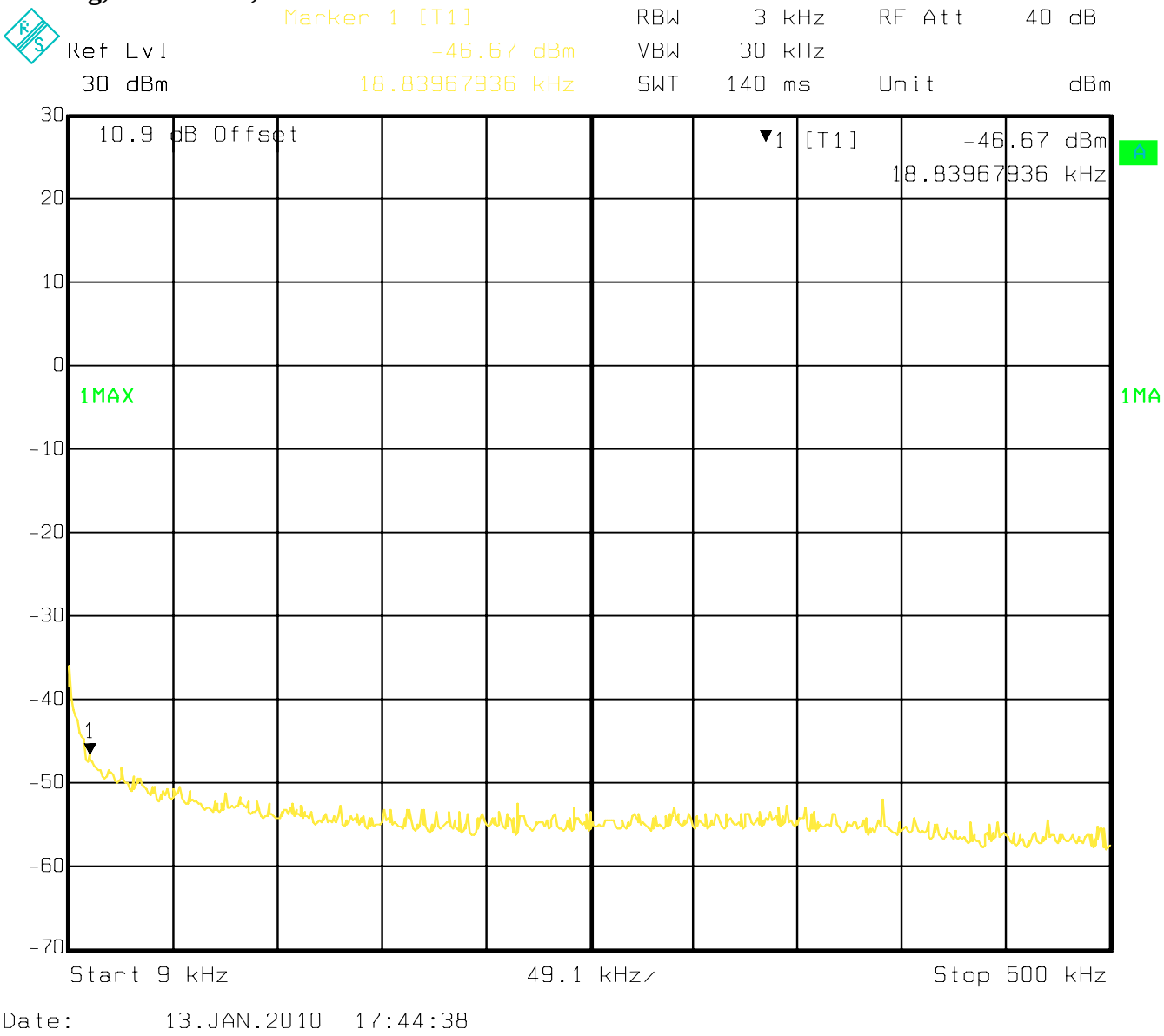
802.11 g, Channel 6, 9kHz-500kHz



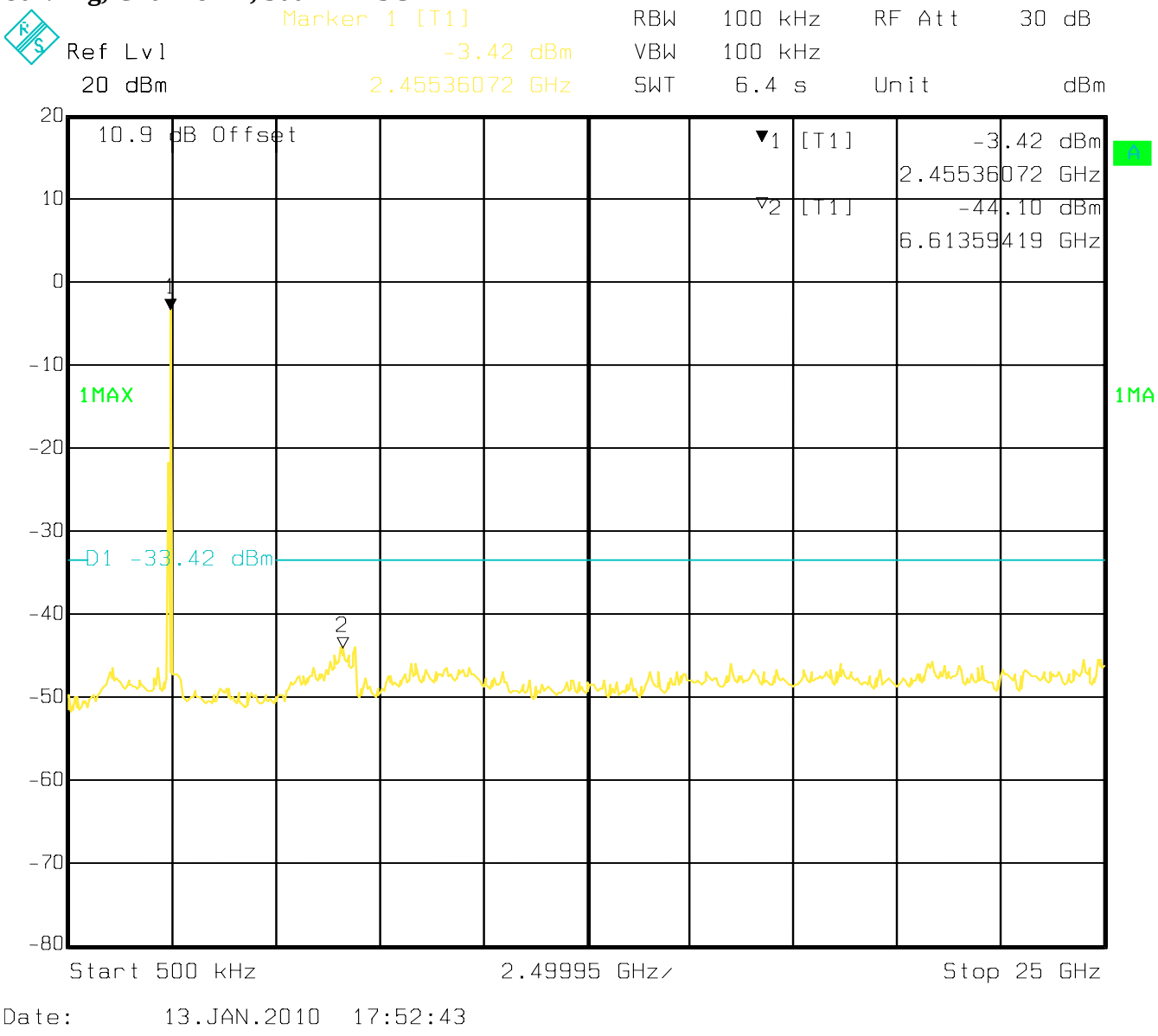
802.11 g, Channel 6, 500kHz-25GHz



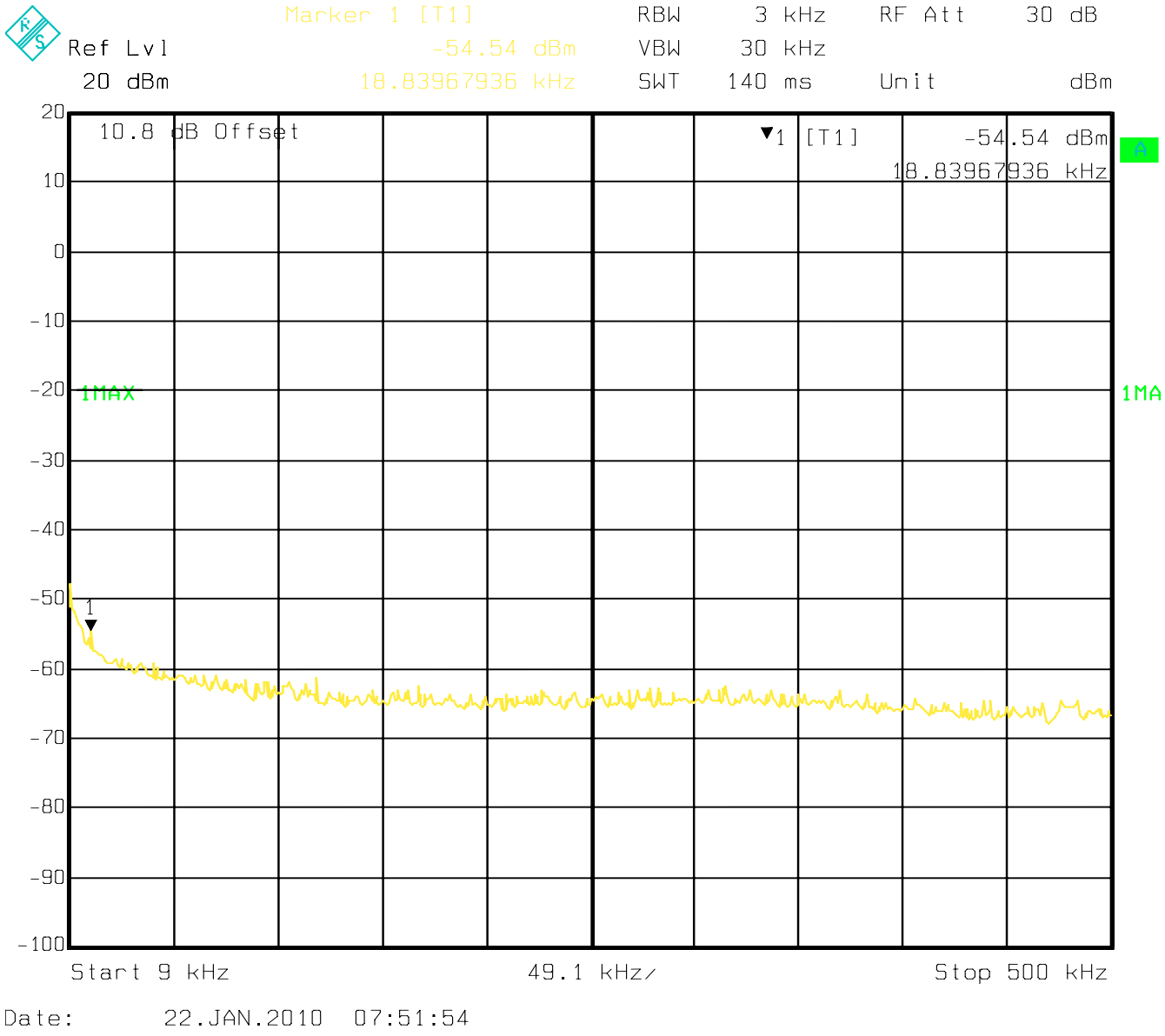
802.11 g, Channel 11, 9kHz-500kHz



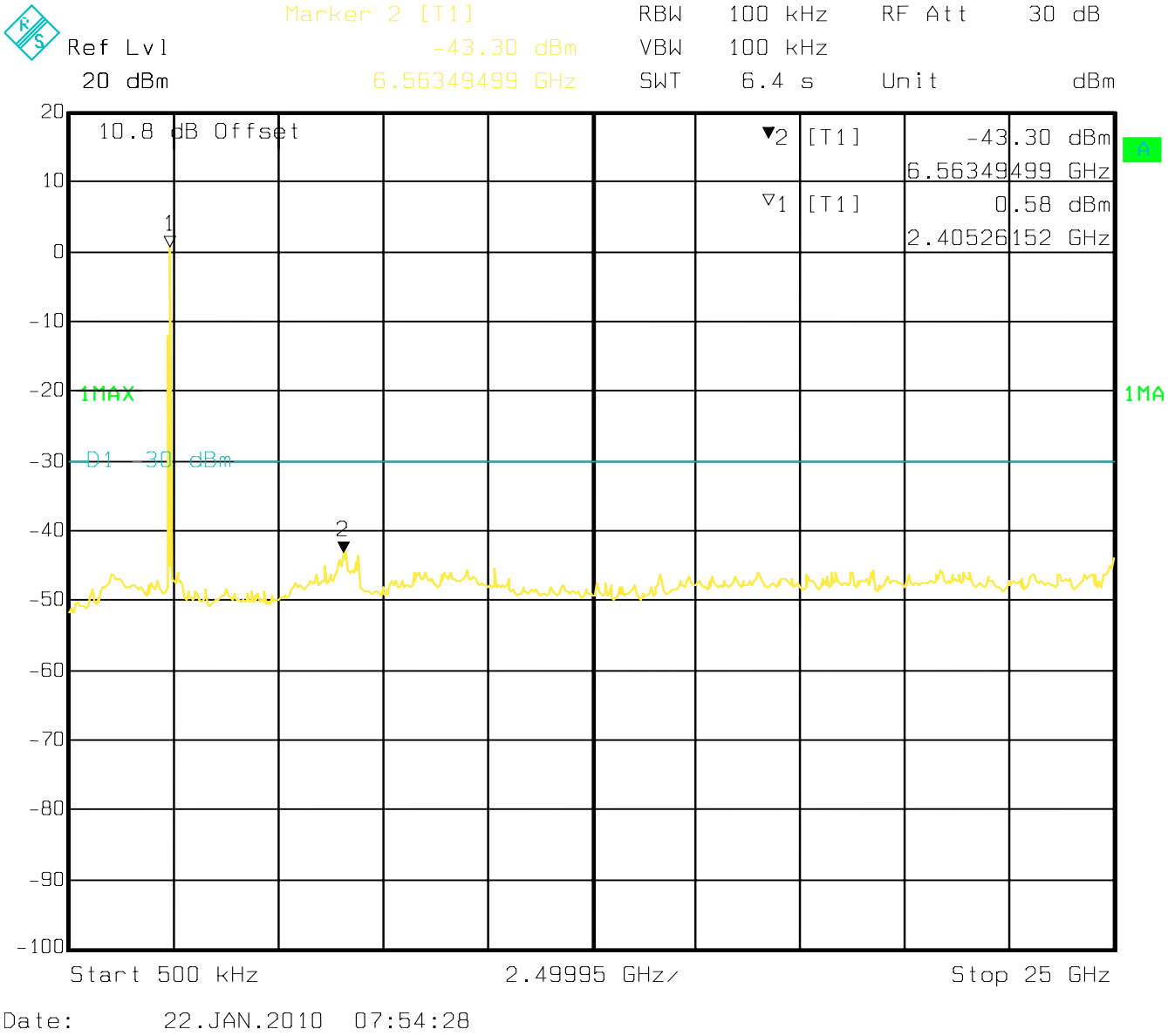
802.11 g, Channel 11, 500kHz-25GHz



Co-location, BT: 2442 MHz, WLAN 2412 MHz, 9kHz-500kHz



Co-location, BT: 2442 MHz, WLAN 2412 MHz, 500kHz-25GHz

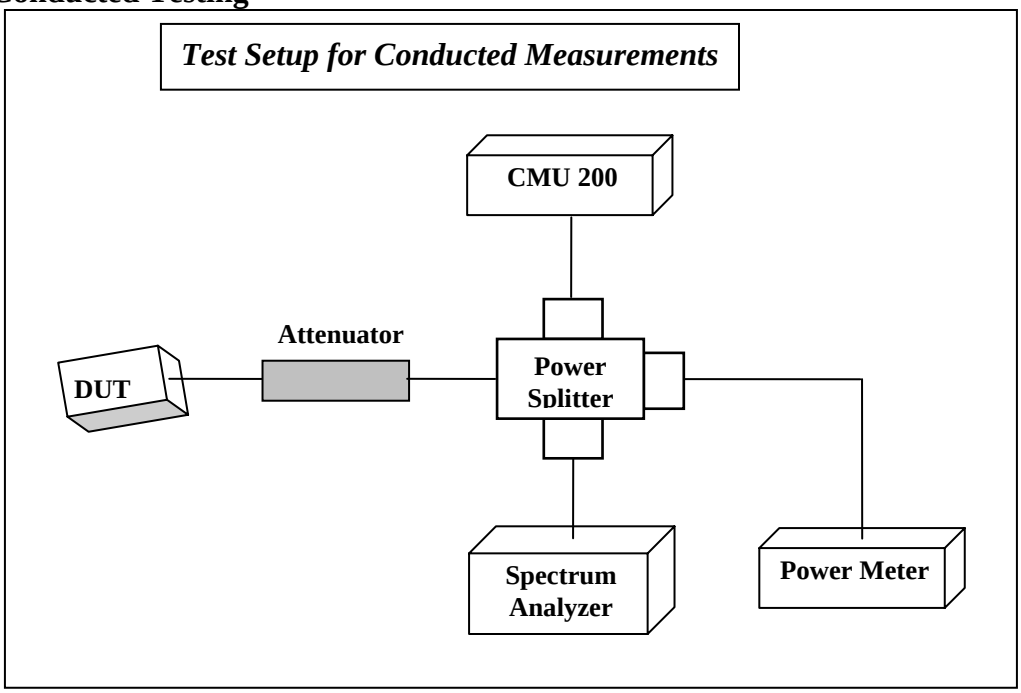


6 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Due	Interval
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107	May 2010	1 year
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	100017	August 2010	1 year
03	Signal Generator	SMY02	Rohde & Schwarz	836878/011	May 2010	1 year
04	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02	May 2010	1 year
05	Biconilog Antenna	3141	EMCO	0005-1186	June 2010	1 year
06	Horn Antenna (1-18GHz)	SAS-200/571	AH Systems	325	June 2010	1 year
07	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240	June 2010	1 year
08	Power Splitter	11667B	Hewlett Packard	645348	n/a	n/a
09	Climatic Chamber	VT4004	Voltsch	G1115	May 2010	1 year
10	High Pass Filter	5HC2700	Trilithic Inc.	9926013	n/a	n/a
11	High Pass Filter	4HC1600	Trilithic Inc.	9922307	n/a	n/a
12	Pre-Amplifier	JS4-00102600	Miteq	00616	May 2010	1 year
13	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807	May 2010	1 year
14	Digital Radio Comm. Tester	CMD-55	Rohde & Schwarz	847958/008	May 2010	1 year
15	Universal Radio Comm. Tester	CMU 200	Rohde & Schwarz	832221/06	May 2010	1 year
16	LISN	ESH3-Z5	Rohde & Schwarz	836679/003	May 2010	1 year
17	Loop Antenna	6512	EMCO	00049838	July 2011	2 years

7 BLOCK DIAGRAMS

Conducted Testing



8 Revision History

2010-03-09: First Issue
2010-03-16: Removed references to Industry Canada and UMTS. Updated FCC ID and model number. Replaces previous report number.